

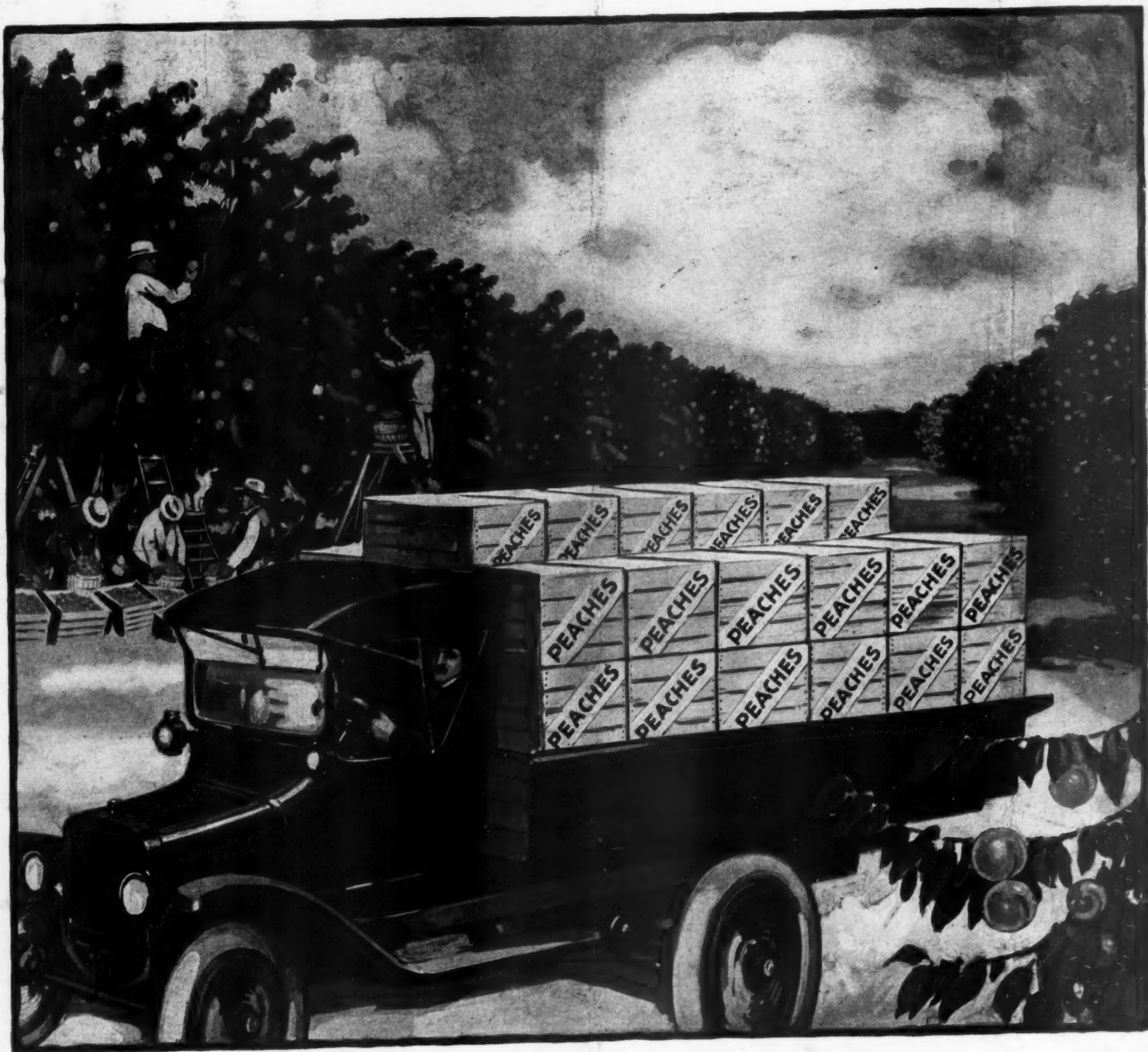
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Vol. XXXVIII. No. 6

JUNE, 1918

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Edited by Samuel Adams



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ORDER NOW—SHOW YOUR COLORS JULY 4th!

Green's American Fruit Grower

A Monthly Magazine Devoted to Fruit Growing and Marketing

VOL. XXXVIII

JUNE, 1918

No. 6

Using Tractors in Orchards Is Profitable

By Arthur L. Dahl, California

THE PLACE of the tractor on the farm is coming to be recognized as almost as important as the use of the automobile by the man who lives in the country. The fruit growers generally feel that the tractor has proved its value for use in orchard work. That this feeling or belief is correct is shown by the experience of many fruit growers in Michigan,

rows for cover crops, either for special war crops, such as potatoes, or beans, or for growing the green fertilizers needed to replenish the soil. With a tractor powerful enough to pull a battery of plows between the rows, or to harrow the soil, the task

fact that, unlike horses, a tractor does not consume fuel except when working. The horses must be fed whether loafing in the stalls or working hard in the fields.

In many orchards the amount of fertilizer needed annually to keep up the soil is in excess of that required for agricultural crops, and in the work of preparing the soil for fertilizer and in distributing it evenly over the surface, the tractor has proved its worth. If the soil is sour and requires sweetening, the tractor will not only haul the crushed lime and distribute it over the surface, but if crude limestone is in the vicinity, the tractor motor can be belted to a portable rock crusher and prepare the lime from the stone.

In many orchard districts the water for

ing or doing the other kinds of work of preparing the soil. He has in addition a versatile gasoline engine, capable of being belted to any kind of machinery to do any kind of work. In fact, the belt work of a tractor is fast becoming the important work it can perform, and until one tries using the power furnished by a tractor engine, it is hard to believe the many diverse uses to which it can be put.

A tractor, with one or more light trailers, will solve the transportation problems of the horticulturist. If he lives far from the nearest city or town, it frequently happens that there are more supplies to be taken in or out than can be accommodated in one wagon. The tractor, with its great tractive power, will pull from three to six heavily loaded wagons or trailers, thus making one job out of hauling what, with a team and wagon, would require several trips.



Moline Tractor Plowing in an Almond Orchard

Virginia, New York, California, Ohio, Maryland and other states. On many of the most progressive orchards the tractor is being used daily for a variety of purposes, and it is fast supplanting horses in fruit culture, as it is in agriculture.

It is true that some of the old types of tractors were not particularly adapted for use in orchards, because of their height, but during the last few years a number of de-

of putting in a cover crop is materially reduced.

On many orchards the tractor is used to supplement rather than supplant the work of horses. The machine is used to do all the heavy plowing, subsoiling, and the tasks which wear out horses and causes sores to appear where the collars chafe, so that when the harvesting time comes, and it is necessary to use every horse on the



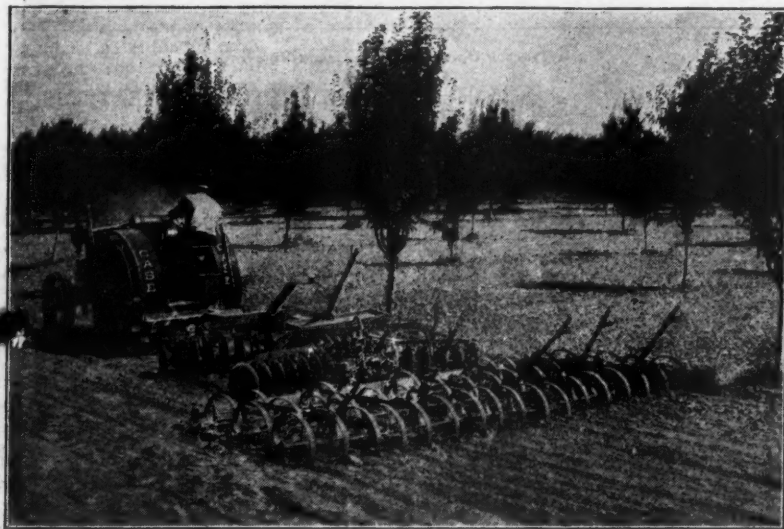
Cleveland Tractor Discing Near the Trees

irrigating the fruit trees is obtained from artesian or subterranean wells, and in certain periods of the year the water level drops requiring additional pumping to keep up the supply. The tractor motor makes a splendid pumping engine, and it can be relied upon in an emergency of this kind.

Used in Many Ways

It might well be said that in a tractor the owner has a manifold instrument of usefulness. He has a power machine which can be used, as horses are, for plow-

During periods of slack work, the orchardist who has a tractor can keep the roads in the vicinity of his place in good condition, by rigging up a scarifier and operating it by means of the tractor. Many county supervisors are adopting tractors to keep the country roads in good condition, for they possess the power to level the roads in the shortest time and with the minimum of supervision. With tractors it is not so much a question of furnishing the same power to be secured with horses, but the principal saving is the



Case Tractor on Sodus, N. Y., Fruit Farm

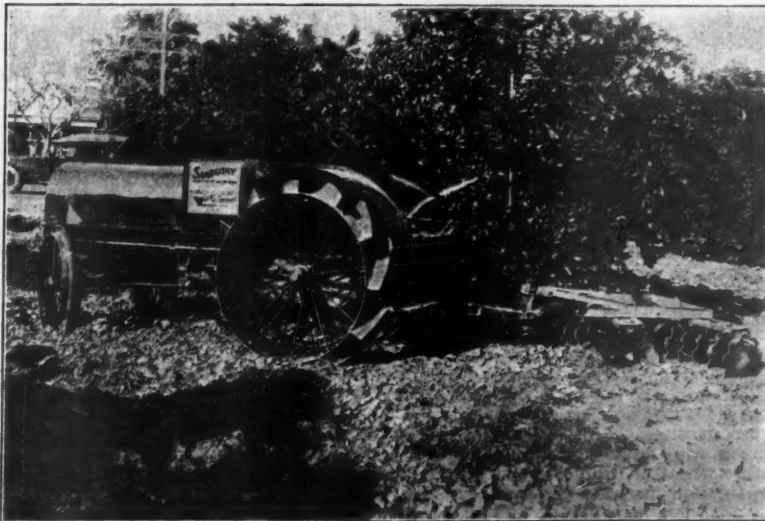
sirable orchard types have appeared on the market, and these smaller but powerful machines are admirably adapted to all kinds of plowing, cultivating and harrowing between orchard rows. The low height of these tractors prevents their catching in the limbs of the over-hanging trees, and with their ability to turn sharp corners and plow within a few inches of tree trunks, they have greatly simplified the work of keeping the orchard soil in good condition. These machines have been particularly useful in preparing the ground between

place in hauling the fresh fruit to the cannery or to the drying fields, they will all be in good condition to work.

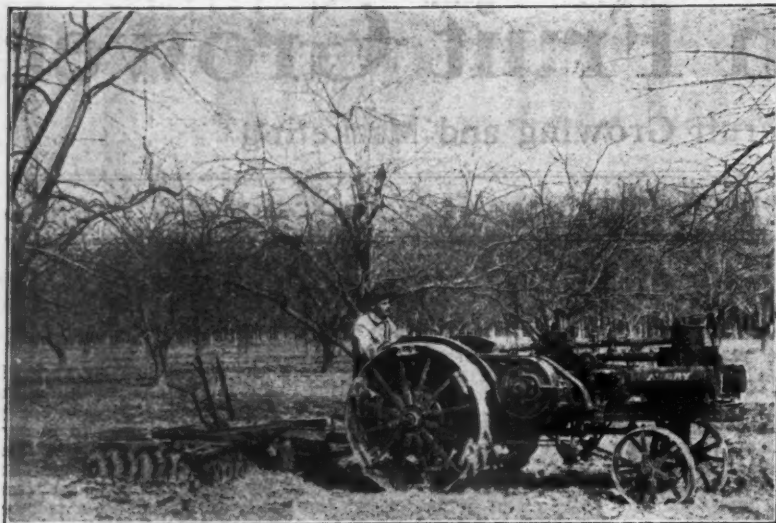
Many Trucks Used

Many orchardists have purchased trucks in addition to tractors and have practically eliminated the horse from their places.

Just as the farmer has learned of scores of new jobs which the tractor can do, between plowing and harvesting time, so the orchardist who has a tractor will find ways to keep it busy. This in spite of the



Sandusky Tractor Discing in Orchard



Avery Tractor Discing in Orchard After Plowing

doing away with supervision, or man power. It requires as much time, attention and effort on the part of a man to handle a pair of horses, as it does to operate a tractor possessing the power of 70

tractors are so easily operated that the young sons and daughters can run them as successfully as experienced men, and at a recent tractor demonstration at Davis, Calif., one of the most successful



Bullock Tractor Plowing Sod

horses, and capable of doing as much work in half an hour as the man and team could in a day. Man power on the farm is always scarce, and in the present war period the orchardist who can so manage his orchard as to secure the needed expenditure of power with the least amount of

operators in a plowing contest was a young 19-year-old girl, who had lived all her life in San Francisco and had never seen a farm machine until a week or two before the demonstration.

The tractor has come to stay. It is being improved and developed very fast,



Parrett Tractor Discing and Making a Short Turn

supervision, will be the one who will get the best results. There are critical times in the growing season of all food supplies, whether wheat or fruit, and the producer who, through mechanical means, can get along with less help than in the past, will find that less loss will result from his inability to get help when needed. Many

and it has within it as great possibilities of usefulness for the orchardist as for the farmer. It is merely a question of carefully studying the different types and choosing that one which is best adapted to work under the conditions which surround each particular orchard.

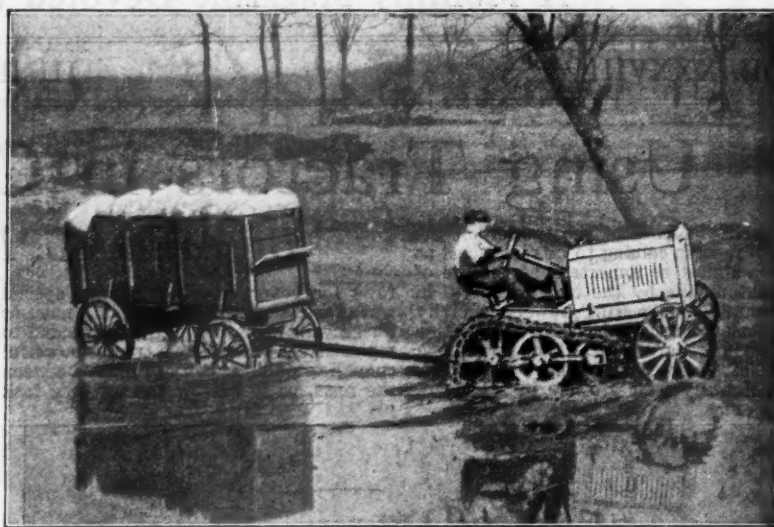
What Is Horsepower?

The drawbar horse power rating of a tractor does not mean the pulling equivalent of the same number of horses. For example, a tractor that develops a drawbar pull of 16-horse power will only replace

American Fruit Grower

is called draft, and it is on this basis that traction engines are compared to horses.

The pulling power of the animal is given as one-tenth of its weight when working continuously 10 hours each day pulling



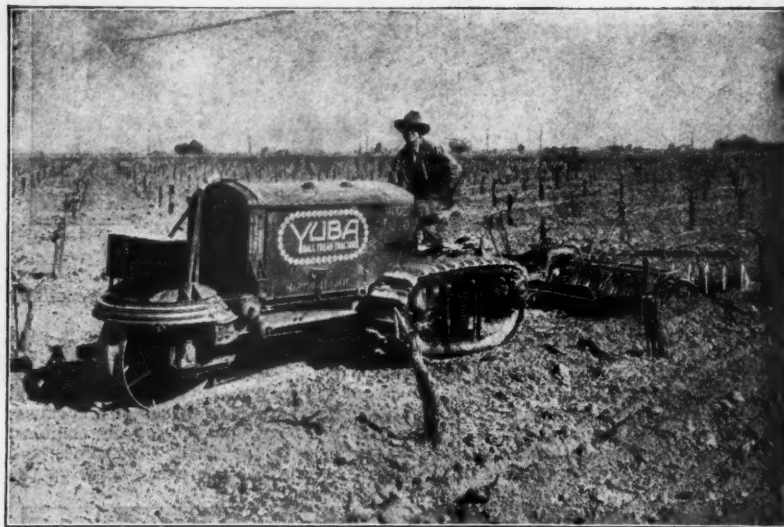
Bates Steel Mule Hauling Wagon Across Stream

the work of about eight good farm horses. It is usually safe to divide the drawbar pull by two.

The customary unit of horse power measure as applied to an engine or machine is equal to 33,000 foot pounds per

some object at the rate of two and a half miles per hour.

Under these conditions a 1200-pound horse will develop but eight-tenths of a horse power and a 1500-pound horse one horse power.



Yuba Tractor Operating in a Grape Vineyard

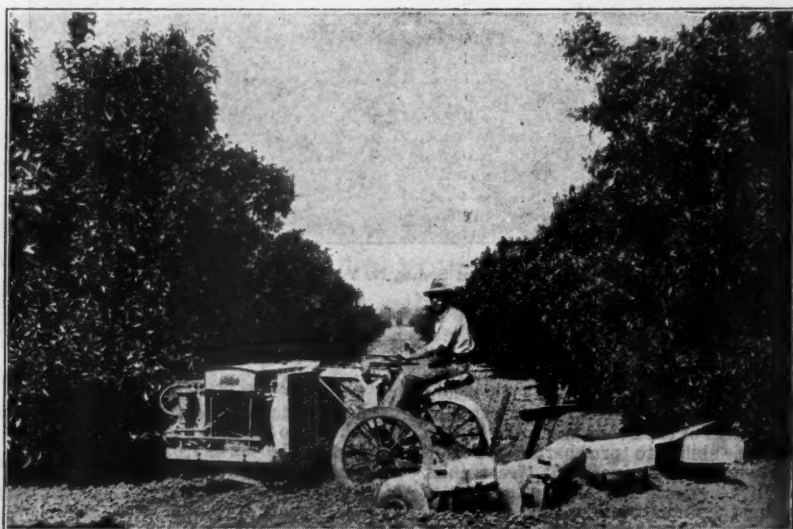
minute. The rating of horse power developed by a motor is obtained by means of a dynamometer or brake. This brake horse power is the useful or commercial horse power. It should equal the indicated horse power of the engine multiplied by the mechanical efficiency of the machine.

The working ability of a horse is measured by its pulling power, which

THE FRETLESS, SWEATLESS TRACTOR

"Though old Sol may do his durndest, He can't make the tractor sweat. Horseflies stop to look it over, But they cannot make it fret."

Start canning just as soon as the first vegetables and berries are ripe.



Bean Trackpull Tractor with Protector on Discs

The Management of Your Bees in June

By E. R. Root, Editor of "Gleanings in Bee Culture"

IN THE last issue, page 5, we gave general directions for the management of bees for the month of May. The same general directions will apply for this month also; and if the reader has not read the previous article he should do so before he takes this up.

We have assumed all along in these articles thus far that the fruit grower is interested in bees only as a means to an end—namely, the pollination of his fruit trees. In the case of the large grower this will be true, for his main object is more and better fruit and not honey. If honey is secured in any marketable quantities, he will be just that much ahead. In the case of the backlotter, who may have a dozen or two dozen trees at the rear of his house, it is possible and even probable that the honey crop would be as important as the fruit. When we remember that honey is now selling, both wholesale and retail, at between two and three times its former price—that is to say, it is selling in pound-bottles at

handle. But care should be taken not to give room too fast.

The beekeeper should examine the combs every ten days to see if cells are started, as shown in the second column, page 5, of the May issue. When these are discovered they should be torn down at once and extra room given. If the entrance has not been enlarged to its fullest capacity this should be done.

If the bees are located out in the open, exposed to the direct rays of the sun, it may be necessary to put on top of the hive some cheap boards that will project about a foot, front and rear, and six or eight inches on each side. These should be held in place by means of a stone weighing 15 or 20 pounds, to keep the boards from being blown off.

But in the great majority of cases, if directions are followed as given in the previous issue, the hives will be located in the shade of a small fruit tree.

When the bees are working well they will be found going out of and into the hive very rapidly. If the honey-flow is heavy, the bees with their loads of nectar will drop down a little in front of the entrance and crawl into the hive. Some bees will be carrying in lumps of pollen on their hind legs. This pollen may be of various colors. That from white clover will be greenish gray; that from red clover a yellowish red. If the bees appear to be flying very heavily into a colony it may indicate that it needs examination inside to see whether more room should be given or whether cells are started.

May Need More Room

If the hive is filled with brood in all stages, as well as honey, and little bits of white comb are built along the top bars of the frames, it is very evident that the bees need more room. If the reader follows directions he will have on hand reserved upper stories to give the bees.

If he kept bees the previous year, and lost, as many beekeepers did last winter, 50 per cent of his colonies, he will have a very ample reserve of combs and hives

sands upon thousands, a swarm has come forth; and if the queen's wings were not clipped the swarm will shortly alight on a limb of some tree or bush. No beating of tin pans in the air will exert a particle of influence in inducing the bees to settle. The best thing that the owner can do is to wait until they do. If they make off across the fields, follow them; but as a rule they will shortly cluster on some bush nearby. If they alight on a small limb close to the ground the swarm can be very easily captured. Unless the shrubbery is ornamental and valuable the limb can be cut off with a sharp knife or pruning-shears, being careful not to jar it so as to dislodge the bees. Before doing this the beginner should put on a bee-veil; and, if timid, he may also put on a pair of gloves. As a rule a swarm is very gentle and tractable. After the limb has been cut, carry it with its burden of bees to a hive previously prepared, containing combs or foundation. If the limb with its bees is laid gently on the ground in front of the entrance they will soon run

same as he did at first; or he may dip them off from the crotch of a limb as at first. The second lot of bees should be hived with the first.

There is always danger that a swarm may go out again after being hived. Perhaps one in ten does so. In that event, capture it again, put it in the hive, then carry the hive and all down cellar and leave it there for 24 or 48 hours or until it cools off.

To Hive a Swarm with Clipped Queen

When the queen's wings have been clipped on one side the operation of hiving a swarm is very simple. As soon as the swarm comes forth, and while it is in the air, hunt for the clipped queen, which will be found in front of or near the entrance. Put a tumbler over her; or, better, put her in a wire cage made by rolling a piece of wire cloth into a cylinder about half an inch in diameter. Plug each end with a wad of paper or cork. Lay the cage with the queen in it in a shady place (never in the hot sun), and then remove the old hive from which the swarm came, and in its place put another hive containing a set of combs or frames of foundation. Take out the center comb, and in its place put a frame of brood (a comb with bee larvae in the cells). Put the caged queen in front of the entrance of the new hive now on the old stand. In a short time the swarm will return and go into the new hive; and when the most of them are in, release the queen, when she will go in with the rest.

This plan works all right when there is no young queen in the hive that went out with the swarm, in which case the swarm will not return.

The plan here outlined saves all tree-climbing and taking swarms from fence-posts or tree-crotches. The fact that it is used by some of our best beekeepers should recommend it to beginners.

The old hive can be put in a new location, after which all the cells but one should be destroyed. Or if no increase is desired it can be put at right angles to the new hive; and when all the brood has hatched, the combs can be shaken in front of the new hive. The old hive is now removed altogether.

THE APPLE LEAF-SEWER

The apple leaf-sewer, sometimes termed the apple leaf-folder, is readily controlled by the use of a spray of two pounds arsenate of lead to 50 gallons of water. This spray should be used on young orchards by the middle of June. In older orchards spraying with arsenicals for the codling moth will also protect the trees from leaf-sewer.

These insects, if not controlled, may seriously affect the foliage, as the larva, after folding one leaf and exhausting its food supply, passes on to other leaves. One larva may destroy a number of leaves in a season.

CHERRY LEAF SPOT CONTROL

Bulletin 286, from the Agricultural Experiment Station, of the University of Wisconsin, Madison, Wis., is entitled "Control of Cherry Leaf Spot in Wisconsin," and is written by G. W. Keitt.

The cover page graphically tells the loss from this fungous disease, by showing an unsprayed twig suspended between two twigs which had been saved from the effect of Leaf Spot by spraying. No stronger argument is needed for the fruit grower who would prefer his trees to bear abundantly, and it is hoped that cherry growers in Wisconsin, as well as in other states which suffer from cherry leaf spot, will post themselves on the methods of control advocated by this bulletin.

CONSULT ADDRESS LABEL

Unless you consult the expiration date printed on the address label of the AMERICAN FRUIT GROWER, you risk losing an issue of the magazine. All subscriptions are stopped promptly upon expiration. If yours has run out, send us renewal today. Three years for \$1.00; one year for 50 cents.

When the rookie forgets to think every minute what an impression he is making in his smart khaki, he is on the way to becoming a real soldier.



This swarm is very easily captured. The operator simply lets the rail come down on the hive with a jar.

50 cents a pound, and when we remember, too, that a colony of bees in the back yard may produce from 100 to 150 pounds of honey, our Mr. Backlotter may conclude that, for the money invested, the bees will yield a larger and quicker return than his fruit trees. It takes anywhere from ten to twenty years to grow trees large enough to secure fruit in considerable quantities. A few colonies of bees may, the first year, produce a maximum crop of honey. The present prices of honey and the prospects of a fine season ahead for the beekeeper makes the bee business more attractive than ever. If Mr. Backlotter can average 100 pounds per colony from 10 colonies (and that is not impossible with good management this season) he will secure 1,000 pounds of honey which will be worth at wholesale somewhere around 18 cents a pound, or \$180 for his crop. If, however, he retails the honey around home, perhaps in his own dooryard, he can secure between 40 and 50 cents a pound for it; and on that basis, if he does not take into consideration the time of his wife and children, he will net \$400.

So much for possibilities. In the line of probabilities it may be said that the first year Mr. Backlotter will make some mistakes. He may not secure more than 10 pounds of surplus honey per colony; but if he will study his textbook carefully in connection with these articles he will get a good deal of experience that will enable him the next year to secure perhaps a maximum of 100 pounds per colony. It is well known that an apiary of 10 colonies will secure more honey relatively than an apiary of 50 to 100 colonies in the same locality.

We have thus gone into details showing the importance of the beekeeping business during these strenuous war times when prices are at their top notch. We are now ready to consider what we must do in order to secure the maximum of honey during this month and next. The warm harvest in most of the Northern States is from the fore part of June to about the middle of July.

Swarming Time

The one difficulty that the beekeeper will have to contend with this month is swarming. This is caused mainly by a crowded condition of the hive. If, as we pointed out in our last issue, the beekeeper puts on upper stories, always keeping a little a head of the bees, the swarming trouble will be very much less difficult to



This is a very large swarm clinging to a very unusual support. It can be easily hived by putting a large clothes basket under it, slowly lifting it up and allowing the bees to fill the basket. Last of all, the support is given a quick jerk, dislodging all the bees. The basket can then be dumped in front of the prepared hive.

which can be put on the colonies that survive and now need extra room.

In spite of all precautions given in these pages, the beekeeper will have some swarms. When the bees rush out of the hives pell-mell, and fill the air with thou-



This swarm must be hived by dipping it off by dipperfuls into a bag as explained in the text. But it is advisable, when dipping off, to use a very little smoke, as what few bees cannot be dipped off can remain, and in two hours' time they will all leave and go back to the old stand.

in. It is advisable to put a frame of unsealed brood in the prepared hive while the swarm is in the air, and before it clusters; but if this cannot be secured, hive the bees as explained.

In case the bees cluster on a fence-post, in the tops of the trees, or on a big limb, the problem of getting them is much more difficult; but usually they can be secured in the following manner:

How to Catch Swarm

Provide a tin dipper, a cloth sack, and a bee-smoker. The fuel should be ignited and the bellows worked until a good volume of smoke is obtained. The operator should have a bee-veil. With all the equipment ready he should now blow a little smoke on the bees, but not enough to cause them to fly from the cluster. With the tin dipper very gently crowd under the bees until the dipper is full. Dump these quickly into the sack, and continue dipping the bees until all or nearly all are in the sack. The sack should be closed as each dipperful is dumped in to keep the bees from flying out. When four-fifths of the bees have been dipped off, the sackful of bees may then be hived by inverting the sack over the prepared hive and giving it a quick shake. The hive should now be immediately closed, when the mouth of the sack should be put in front of the entrance to allow the few bees left to run in.

Where bees are located on a high limb they can often be reached by fastening a common half-bushel basket on the end of a long pole. To catch the swarm, push the basket under the cluster of bees very gently. Keep pushing upward until the bees are well in the basket. Now give it a couple of sharp punches upward, jarring the bees that are on the limb into the basket. Let the pole down gently; carry basket and all to the prepared hive and dump the bees into it, or in front of the entrance. When dumping bees into the hive it is always advisable to put on an upper story to avoid crushing any bees when the cover is put on.

In all cases after capturing the bees there will be a remnant of from 10 to 25 per cent of the bees that will cling to the old spot whence they were hived. The operator can go back with his swarming-basket and capture the remainder the

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Death of E. H. Shepard

FRUIT GROWERS everywhere, and especially in the Northwest, will hear with sincere regret of the death of E. H. Shepard, editor of Better Fruit, Hood River, Ore.

Mr. Shepard occupied a commanding position in the development of the fruit industry of the Northwest, and was the leader of all movements that lead to the betterment of fruit growing as a business.

Storage Buildings

WE HAVE a request for photographs of concrete fruit storage, vegetable storage, milk storage, coal storage and grain storage buildings. We will be pleased to receive photographs of such concrete buildings from any of our subscribers who may care to send them to us.

Good Roads Make Homes

ON A recent tour through the prosperous middle-west farming district, we learned that the features of the landscape may mean something more than meets the eye. Interesting inferences might be drawn from apparently chance combinations, such as neat, attractive dwellings, big, up-to-date barns, handsome schoolhouses and good roads.

Get Your Fruit Packages Now

UNLESS you mean to market your fruit in bulk, you should place your order for packages as soon as possible. Barrels and crates, particularly, promise to be very difficult to obtain unless orders are placed early. Often growers hesitate to order until reasonably sure of the amount of the crop, but this year they should at once see their local coopers and co-operate with them in securing stock for their needs.

The prices on slack cooperage have been steadily rising, and there is no indication that the peak has yet been reached. It is possible that growers may have to finance

the purchase of stock by the small cooperage shops in their communities, in order to assure the supply being adequate for local demands.

It is suggested that, wherever possible, complete cars of heading, staves and hoops should be ordered by the barrel packers. One car of hoops and one car of heads will, it is estimated, take about three cars of staves. An average carload, loaded to capacity, would be about 10,000 sets of heading, 70,000 mill-run staves, and 70,000 six-foot hoops. A minimum car of mixed stock will make about 2,500 barrels.

Freight is moving slowly, woodmen and mill laborers are scarce, and thus the price of apple barrel stock has increased while the supply has diminished. Order at once.

Farm and City Wages

THE EMPLOYMENT division of the Ohio Council of Defense recently compiled a table comparing the items of income and expense in town and country.

This table shows that a farm laborer working on a farm at \$30 per month can do fully as well as a city laborer working in the city at \$105 per month. A married man working on the farm at \$40 per month fares better in a financial way than a married man working in the city at \$100 per month. A married man working on the farm at \$40 per month can save \$20 of his wage for Liberty Bonds while the married man working in the city at \$100 per month is able to save only \$4.50 for Liberty Bonds.

The apparent difference between farm and city wages is reconciled by a high expense against city income and a low expense against farm income. The city worker has to pay out money at every turn while the farm worker has free house, garden, fuel, and many privileges which make for saving.

As the farmer must provide these extras just accounting will give a reasonable wage value to all privileges and credit them as a part of the wage that farmers have to pay for labor. It is a mistake, therefore, to conclude that farmers do not pay good wages. If the purchasing power of the farm wage is taken into account, farm labor receives a higher wage than city labor.

Everyone Doing His Best

THE PUBLIC business touching the war has suffered grievously through mismanagement and ignorance. Rural production has been handicapped chiefly by ignorance. The control of food products has been more favorable to middlemen than to producers and consumers. These unnecessary blunders are exasperating in the highest degree. While every patriot may and should speak his mind in the way of legitimate criticism of the way matters have been handled, yet it would be fatal to hesitate or balk at this critical hour of our national distress.

The world must have food, and the farmers of America must produce their share. And only agricultural operations will insure a crop. Complaining, fault-finding, indignant protest against unfair discrimination, only delay the preparation of the seed bed.

The die is cast and the draft will have to take its course. Governmental authorities are now thinking about industrial production. Ships, guns, and the like are greatly needed. This munition famine was the chief feature of the first year of war. Production will gradually overtake demand. By that time the food famine will press for the attention of governmental authorities. They will then want the advice of farmers, and they will have to take some of it.

In the meantime, let the draft take its course. Get what labor you can and use it to the best advantage. In the end right will prevail. At the close of the Franco-Prussian war in 1871, when France, conquered and humiliated, needed one billion dollars to pay the indemnity exacted by Germany, the farmers of France came forward and saved their country from ruin. And ever since those days, the farmers of France have been the bulwark of the nation.

The farmers of America now have a similar opportunity to prove their love of country. And love never fails.

Conscience and Corn Bread

THE GREAT war is testing the merit of things new and old. New ships, new guns, new battle planes, new contrivances and inventions, are expected to help win the war. But there are some old things which may also be expected to help win the war.

Conscience is one of these old-fashioned things—the faculty of seeing and knowing things together. The free exercise of this faculty will insure success of the new enterprise of war and at the same time insure the permanency of everything old that is worth abiding. Hence, the ruthlessness and hardness of war will be transient phases of a national life that is created and equipped for the more precious things of peace, for conscience is just the knowing that every moment of any present has both a past and a future. The good, as well as the evil, that men do, lives after them. Conscience will see to it that less of the evil and more of the good shall live and thrive.

Corn bread is another old-fashioned thing. It was once the symbol of poverty, rural destitution. The necessity of eating corn bread was deemed either a punishment for laziness and thriftlessness, or a reproving visitation of Providence.

The times and the sense of values have changed. The plebian corn bread of peace and rural meagreness, is now the bread of victory and triumph.

But—and here is the test—will the people of our country eat the bread of old-time rural meagreness in joy and gladness. They must either eat corn bread now as victory bread or eat it later as the bread of slavery.

A good conscience will make corn bread both wholesome and respectable.

Attention, Subscribers!

FROM now on the fruit farmers will be deeply interested in knowing the fruit prospects of every section. We shall be greatly obliged to all of our readers who will send us reports as to the prospects of every kind of fruit in their locality.

Orchard Problems and Their Solutions

Pruning Apple Trees

Q. How should my young trees be pruned that were planted out this spring? They are apple trees, some two-years old, some one-year old?—A. J. H., Missouri.

A. The one-year old apple tree is generally a straight whip and it simply requires heading-in to a height of 24 to 30 inches, making the cut just above a bud. Some growers head as low as 18 inches.

One of the advantages of a one-year apple tree is that the grower can form his head exactly the way he prefers. As the buds come out on the one-year old apple tree you should select the buds which you want to grow into limbs that form the head of your tree and pinch off all other buds so that all the growth of the tree will go to the selected buds.



Pruning Two-Year Apple

Prune tree to open head. End buds point outward, producing a spreading tree.

In selecting the buds for training into the limbs, see that they are equally distributed around the trunk so that no weak crotches will be formed after the tree grows larger.

In pruning the two-year apple tree it is simply a matter of thinning out the superfluous limbs and heading back the ones that are selected to form the main limbs of your orchard tree. You should choose four to six branches equally distributed about the trunk and head these branches back to 6 to 12 inches from the main trunk. When heading back a limb always cut back to a good, sound bud, which points in the direction desired. In other words, you should aim to get a spreading tree and by cutting back to a bud that points outward from the middle of the tree it will tend to make your tree spread out into an open-headed, vase-shaped tree.

Fillers in the Orchard

Q. Do you advise the planting of fillers in the apple orchard? What are the best fillers?—H. A. A., Missouri.

A. Yes, the filler system is all right, but like all other methods it must be handled in the right manner or bad results may

follow. Fillers allow the owner to get double crops from his land for a certain number of years. Before planting fillers in your orchard you must make up your mind that you are going to be ready to cut out those filler trees before they crowd the permanent trees.

In an apple orchard there are a number of different kinds of fillers that may be used with excellent success. In many parts of the country practical orchardists plant their apple trees 30 feet apart on the square plan and put peach trees as fillers in the center of the squares.

Peach trees will come into bearing early and will give many fine crops of fruit before they will begin to crowd the apple trees, at which time they should be cut out.

Cherry trees and young-bearing apple trees are also used successfully as fillers. Early apples make especially fine fillers. Varieties like Yellow Transparent, Live-land, Raspberry, Wilson Red June, Wealthy, Duchess, Wagner, are all splendid fillers.

Some of the winter apples, such as Jonathan, Black Ben, King David, are also used as fillers. They are all young-bearing sorts. Any of these varieties of apples mentioned above make good permanent trees as well as fillers, but on account of their early-bearing they are especially adapted where fillers are desired.

In these times, where it is so necessary that the maximum amount of food be produced, we should plant more and more fillers, but always bear in mind that they must be cut out at the right time.

The writer visited a Virginia orchard several years ago, where there was a splendid Stayman Winesap orchard, about 13 years old. This orchard had Yellow Transparent as fillers. The owner had been getting two splendid crops of fruit from this orchard nearly every year—one crop from his Yellow Transparent and one crop from his Stayman. However, the trees were beginning to get close together and the fillers could be left in only two or three years longer.

Peach Tree Borers

Q. My peach trees show a jelly-like formation; what is the cause of this? How can it be prevented?—R. W., Mississippi.

A. Jelly-like formation on peach trees is caused by some injury to the bark and generally this injury is due to the peach tree borer, which is usually found at the base of the tree trunk. The borer should be dug out each year in late spring. In the middle-west this work should be completed before June 1st. In Mississippi it should be done considerably before then. The peach borer is a small yellowish-white worm about one inch long when fully developed. In cutting it out of the tree trunk do your cutting with a sharp knife so the cut portion will have a smooth surface and the new bark will grow over it readily.

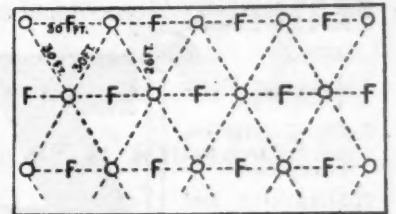
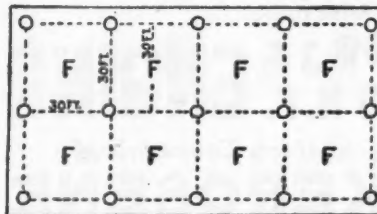
It is also helpful in controlling peach tree borers to mound up the dirt at the base of the tree to a height of one or one

and a half feet. This will make the insect lay its eggs higher up on the trunk and make it easier to cut out the borer later on. If you watch your trees you will have no trouble in controlling the peach borer.

Top-Working Cherry and Plum

Q. I have tried to graft cherry trees but have never had any success. Please advise me how to top-work cherry and plum trees. Also, advise best time for doing this work.—F. M., New Jersey.

A. The best method for top-working cherry and plum trees, which are both so-called "stone fruits," is by the shield budding process. The budding should be done along in midsummer, when the bark will slip easily, so that the bud can be inserted and then wrapped with twine until it becomes established. After ten days or two weeks twine is unwrapped and the bud has had a chance to grow on to the stock on which it is top-worked. This bud remains dormant until the following spring, at which time the limb above the bud



should be cut off so that all the strength will go to the inserted bud.

There may be a number of different varieties grown on the same tree and this method is particularly adapted to a limited space where the owner has only room for several trees and still wants to get a good assortment of fruit.

The writer has one apple tree in his back yard which was originally an old Geniton tree. I top-worked it to King David and Stark Delicious, and later top-grafted some Golden Delicious—three different varieties on the same tree. Also, I have an apricot tree on which I top-grafted several varieties of plum.

Make Old Trees Productive

Q. How should I prune an old-home orchard that has been neglected for many years? Trees are about 25 years old, and the tops are rather thick? I have gotten very little good fruit off the orchard, which is accounted for by the fact that I have given it no care. With the country needing so much fruit I feel it my duty to do everything I can to make these trees productive. I am willing to try. Will appreciate your advice.—A. H., Illinois.

A. We are glad to know that you show a willingness to give these neglected trees a chance. The main part of the battle is won after you make up your mind to take care of these trees, the rest is very simple—it just requires a little judgment and some work.

There is indeed a great necessity for all non-productive trees being made to pro-

duce crops of fruit because fruit is food and food is ammunition. It will all help in winning the war. If every owner of neglected trees would do as you plan to do it would increase the production of fruit a very large per cent.

The main thing that you must do to those trees is give them a fairly heavy pruning. In other words, a renovating of the old trees. Do not make the mistake of cutting back too severely. Some old orchards are dehorned—that is, the large branches cut back too close to the trunk—this is a mistake and results in the trees throwing out a lot of water sprouts which will delay the fruiting even longer. The best method is to thin out the head of the tree so that it will give a chance for the sun and air to get into the center of the tree and let the fruit get sufficient color.

Cut out all dead branches and then follow a general thinning process of the branches, cutting out where they are thickest so that no two branches will rub together. Be sure to leave enough of the young wood to produce some fruit the first season. It will be necessary to shorten-

in somewhat the branches that remain after the thinning out process.

In your section it is probably too late to give the application of lime-sulphur spray at the concentrated strength, as this can be applied only before the trees are in leaf. However, you can still spray for the codling moth. The proper time for this spraying will be just as the petals fall. Spray thoroughly. Other application of spray could be made later on in the summer, but the most important one is the one just after the blossom petals fall. See the spray schedule published in the February issue.

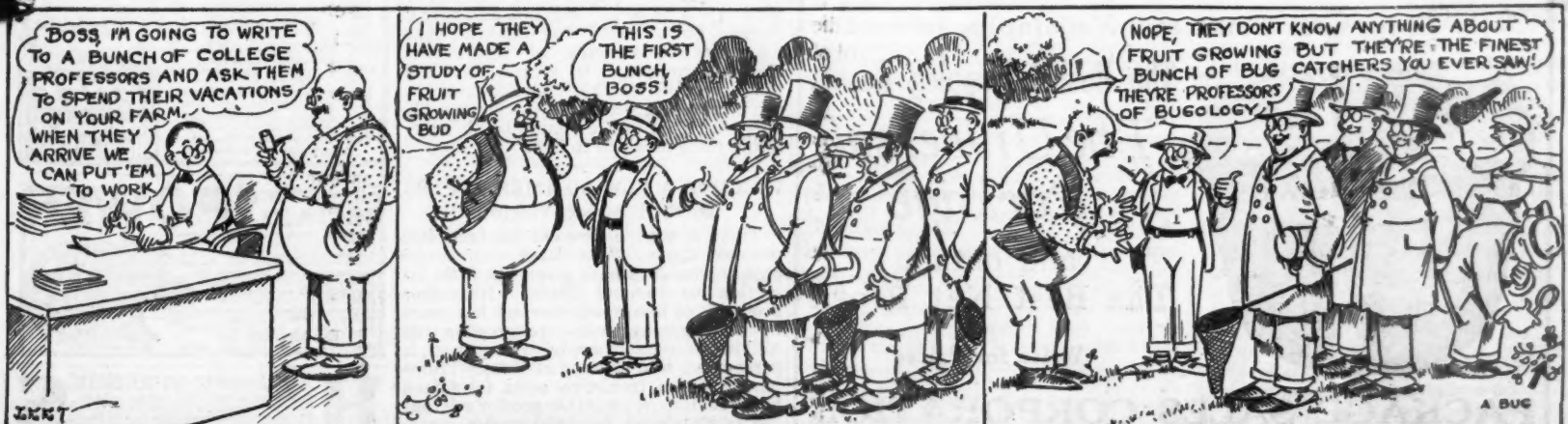
Don't be satisfied with renovating your own orchard but spread this information among your neighbors; see that all those in your locality prune and spray their own orchards so they will be in shape to bear fruit this year.

Always remember that manure is a splendid fertilizer and will help strengthen the trees. Give a good application of manure this spring.

GARDENING BULLETIN

Nebraska Extension Bulletin No. 50 is especially adapted for the amateur gardener. It tells what kind of vegetables may be easily grown, the time of planting and maturing, and how to combat the various insects and worms that are most troublesome to ordinary vegetables. This publication may be obtained free upon application to the Agricultural Extension Service, University Farm, Lincoln, Nebr.

Adventures of Bud Pippin and Simon Spray



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1 1/2 H.P. (Gasoline) \$52.50
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All F.M. Factory With **BUILT-IN MAGNETO**

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Economy and efficiency, with "more than rated power" in an engine is the war-time-demand of farmers of America. They have "quit guessing"—they demand action, proof-performance on their kind of work. So 150,000 leading owners have backed their judgment on the FAIRBANKS-MORSE "Z" Engine with \$10,000,000.

That's a lot of engines bought for reasons you'll find are wise ones.

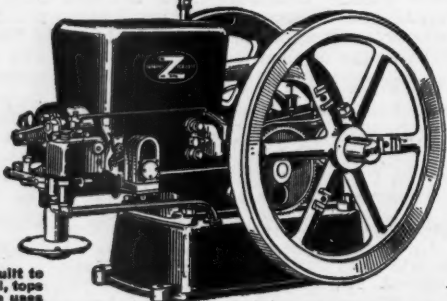
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Light

By W. Roy Bornhill, New York

"The prayer of Ajax was for light." There is one thing about light that no one can deny. When you want light, there is nothing can take its place. There is no substitute for light.

Light is probably the greatest blessing that science has given to humanity, and yet there are thousands of country homes insufficiently lighted today.

The Ancients knew and practiced the science of physical optics. They used rock crystal to reflect and intensify the rays of the sun.

From the earliest times up to the nineteenth century, the burning of animal and vegetable oil was a source of light. Then mineral oils began to be used.

The old oil lamp of the type of Aladdin, with no scientific burner attachments, and the poetic candle, were the methods of burning the oils for light.

After that coal gas and acetylene were used, and with these came the development of burners, mantles and glass protectors.

Then the "glow lamps" and the "arc lamps," fed by electrical current, came to revolutionize the world, almost literally turning night into day.

All systems of lighting have points of excellence to recommend them. It is a question of what system lends itself most conveniently to ones use.

For instance, the wind cannot blow out an electric light. Neither can a cow kick it out.

Acetylene is frequently accepted on account of its low cost of maintenance.

On the other hand, the New York Subway uses oil lamps for switch lights and head and tail lights on all trains where there is electrical current in abundance.

When the sun goes down and twilight fades into night, darkness shuts down on half the world and would put out the eyes of millions of people but for the gift of artificial light. One of the marks of civilization is that people can "carry on" with their pursuits by night as well as by day because of light.

Also, electrical flash lights as well as oil burning lanterns are a great necessity on farms in these days of tractors and other intricate machinery, and where a great deal of tinkering on these machines is done at night.

Practical information, together with costs of installation and maintenance of all lighting systems, will be furnished gladly.

LARGE EXPERIMENTAL ORCHARD

How many people in Illinois, not to mention other states, know of the large experimental orchard of Mr. Benjamin Buckman, of Farmingdale, Ill.? Every fruit grower should know of this big work in the interests of fruit growing.

Mr. Buckman has, in his private orchard, 1,936 varieties; 44 of these are miscellaneous and ornamentals and all the rest are fruits! This is experimenting on a pretty big scale, and Mr. Buckman assures us that he is over 70, so he has had many years to devote to this fascinating orchard.

We would be hard put to it to find a fruit grower who had even heard of each one of the 1,467 varieties of apples. How many can you, who read this, name? Sixty pears, 78 plums, 42 peaches, 6 cherries, 12 papaws, 4 quinces, 58 persimmons, are growing in that orchard! Some of us will be surprised to read of 12 varieties of papaws and 58 of persimmons, and only 6 cherries, but at least it has taught us that there are 58 varieties of persimmons grown in America. Of grapes there are 108, strawberries 19, blackberries 3, raspberries 5, gooseberries 3, currants 11, nuts 16. That orchard must be an interesting place in which to live.

INCLUDE A FEW SUMMER APPLES By F. H. Sweet, Virginia

There is a good demand for first-class summer apples. The large commercial apple orchardists have given but little attention to summer fruits. Handsome profits have been made the last few years by fruit growers who are growing the Yellow Transparent apple. One grower, it is reported, sold his crop of Yellow Transparent apples from two acres for fifteen hundred dollars. Another grower sold one car in Pittsburgh for \$900, and a car in Philadelphia for \$600. Summer apples can be grown on apple land as profitably as later ones.

American Fruit Grower



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Moisture Influence On Apples

By Sylvanus Van Aken, New York

During the past eight years I have had splendid opportunities to make observations on the influence of moisture on fruit production, especially as it influences the type of apple as well as the general nature of the tree. Moisture has a very marked effect on the color of red apples. Trees that are growing by the fence rows, that are more or less neglected, that are growing in sodded orchards which never have any care, will as a rule have well-colored specimens as far as depth of color is concerned.

They have very deep color, but the color is not a live, bright, handsome, attractive color. Just as soon as you add moisture, either in the way of mulching with straw, by clean tillage, or by irrigation, you get a perceptible change in the color. It takes on the live, handsome appearance which goes far to sell the fruit.

With yellow apples, for example, those which are in check plots or plots that are not receiving as much moisture as it is desirable to give them for the best development, take on their color earlier in the fall than otherwise. Yellow Newtowns on light lands will often develop a beautiful orange color by the time they are picked, whereas under conditions where there is a better supply of moisture the apples are green in color when they are harvested.

Moisture Affects Form

The form of the apple is materially changed by moisture. The apples raised on the Pacific coast are often noted for their angular shape and ribbing. The apples as grown on our young trees in our most thrifty orchards, tend to be long and angular. We have noticed that this elongation is probably due to a very large extent to an abundant moisture supply, as can be seen where the plant food supply is the same in two plots, and the moisture supply different.

A careful examination, however, will show that under our present systems of orchard management we have really got less moisture in our 10 or 15-year-old orchards than is present in the orchards during the first three or four years of their lives. We are giving the trees less care in cultivation and mulching, and the older they become the less angular and elongated they are, and as the trees become older the fruit becomes flatter. The difference in the length and ribbing of the fruit at times is extremely marked.

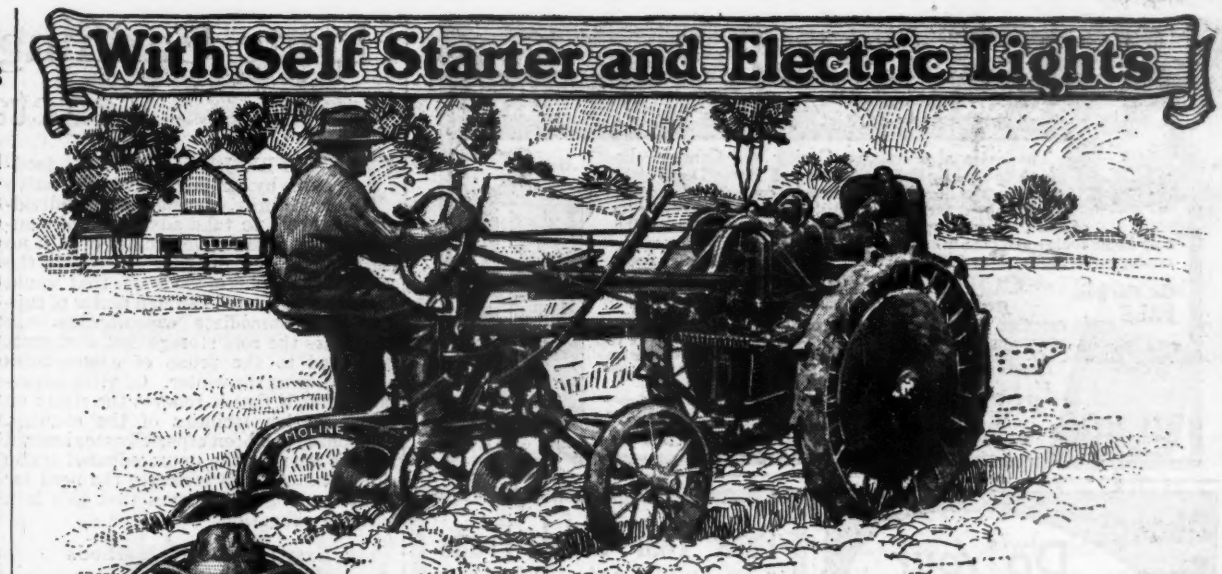
Effect on Size

Then the size is influenced by moisture. With abundant moisture we get large-sized fruit. Not only that, but with this abundant supply of moisture you can bring a very heavy crop of apples up to a large average size, whereas on trees suffering from want of moisture the fruit never makes a good size.

Then there is the influence of moisture upon maturity. Too little always encourages early maturity. I have seen a difference of nearly a month in the picking time of Yellow Newtowns, brought about by lack of moisture supply. Those apples which tend to mature earlier are also apt to be shorter keepers than those which mature later. The percentage of fruits that will drop about picking time, or all through the season, for that matter, is influenced very largely by moisture supply. In some cases this difference in some plots amounted to as much as 15%, which, with a heavy crop of apples, means a great deal. After the trees reach maturity and as the crop becomes heavier, the trees begin to suffer greatly from lack of moisture as picking time approaches, and to shed much of their fruit when there is not enough moisture. It is probably one of Nature's precautions. On the other hand, if you give those trees plenty of moisture by good tillage, heavy mulching, or plenty of irrigation, you will prevent much of the drop.

There are relatively less cells in apple orchards receiving sufficient moisture. Many of these cells consist of apples with calyxes cracked, or affected with stem crack. Dry check plots will have a much larger percentage of this class of fruit. However, in all fairness, I believe that much of this calyx cracking and stem cracking is due in some sections to letting the fruit hang on the trees too long; it should be picked earlier.

The fruit matures earlier on the dry



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Load 12 acres of hay.

In addition, it can be used on the belt for running threshers up to 24 inch capacity, silo fillers, corn shellers, feed grinders, wood saws, clover hullers, hay presses, pumps, lighting plants, etc.

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Conservatively rated at 9-18 horse-power, the Moline-Universal Tractor has more than ample power for heavy belt work. Its greater speed enables it to plow as much in a day

with two plow bottoms as the ordinary three-plow tractor. Yet it is light enough for such work as cultivating, mowing, etc., which do not require as much power.

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plots than on those which have sufficient moisture; nevertheless, the percentage of culls is larger. Many of these culls will be under size and lack good characters inside. Those fruits which suffer from lack of moisture do not have as crisp and juicy flesh and tend to be leathery, corky, and not as attractive as those fruits raised under conditions of an abundant moisture supply.

Producing Large Crops

The size of the crop is materially influenced by moisture. Not only is this true for the current year but for future years as well. One will find in plots where sufficient moisture was supplied, that the trees will not only maintain and mature a heavy crop of fruit, but at the same time will develop strong fruit spurs and buds, and, with some varieties at least, they are encouraged to bear annual crops. Their wood growth is also very materially affected. Small trees, which had the heaviest crops, especially where well supplied with moisture, made a growth of

wood greater than trees with light crops that did not have plenty of moisture.

The foliage is also affected. Whenever an apple tree suffers from want of moisture, the foliage tends to turn yellow early in the fall and becomes dormant much sooner than normal. I tried an experiment one year by taking some trees on a lawn and watering them heavily during the fall. I was able to keep foliage on as late as December 20. Of course with young trees it would be very dangerous to carry this practice late into the season. Many people, owing to excessive tillage, or too heavy mulching, or the use of too much irrigation water, have forced their young trees into the fall unhardened. With an unusually cold fall or winter, the trees have been seriously damaged, and in some cases killed outright. However, there is less danger of keeping trees in activity in the fall when they have a crop of fruit than when the trees are young.

One point I wish to emphasize is that the abundance of moisture in the soil enables you to start cover crops earlier and

get a much more uniform stand. This has doubtless been a great advantage to the growers on the Pacific coast.

In discussing among ourselves the systems of irrigation or non-irrigation, clean tillage or mulching, we often shoot wide of the mark. We have not realized the great role that an ample moisture supply plays on our fruit production. It is not so much the system we use in securing this water, as it is to understand the underlying principle, namely, that we must maintain a good moisture supply in our orchards. The way we will attain our ends will depend upon local conditions.

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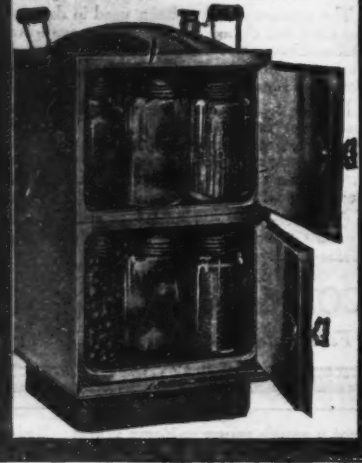
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Home Canning of Vegetables and Fruits

THE PRESERVATION of food-stuffs by canning is always effective food thrift. It enables the individual household to take advantage of summer's low prices for vegetables even if no garden has been planted. It effects the saving of a surplus of foodstuffs that would otherwise be wasted through excess of supply over immediate consumption. It eliminates the cold storage cost that must be added to the prices of commodities bought during the winter. Of vital importance, also, is that it relieves the strain on transportation facilities of the country. This phase has been especially emphasized for this year by the unprecedented traffic situation. All this increases the need for home canning and proves that this is a national obligation.

Easy by Modern Methods

By the single period cold-pack method it is as easy to can vegetables as to can fruits and this year it is more useful. By the use of this method canning may be done in the kitchen or out of doors. It may be done in the individual household or by groups of families. Community canning is important in that it makes possible the use of the best equipment at small individual outlay and induces food conservation on a large scale. Community canning by school children, under the direction of competent teachers, is especially valuable.

Community Work

One of the best methods to follow in canning and drying operations is for several families to club together for the work. The work may be carried on at a schoolhouse, in a vacant storeroom, at the home of one of the members or at some other convenient and central location where heat and water can be made available. By joining in the purchase of equipment each participant will be in position to save money as against individual purchases and at the same time have the advantage of larger and more complete equipment. The cost is slight when thus divided and the benefits very great to all concerned.

For a co-operative enterprise it is well to have a committee of from three to five to take charge of all details. First determine how many people will take part in the work, how much each proposes to can or dry, what vegetables and fruits each will furnish and such other information as will have a bearing on the selection of equipment. After deciding how much money will be needed have each member contribute his or her proportion, determined by the amount of canning or drying he or she proposes to do.

The equipment should be bought as early as possible, to prevent disappointment in delivery which is almost certain to follow delay. This equipment may be ordered through a local dealer or direct from the manufacturers. The National War Garden Commission publishes a list of manufacturers which may be had upon application and a number of the best are advertising in the AMERICAN FRUIT GROWER.

The equipment may be used by the individual members, on a schedule arranged by the committee, or a working force may be appointed to do all the work, receiving pay in the form of a percentage of the product.

Publicity is important in keeping interest aroused and there should be a committee to arrange with the local papers for the publication of information concerning the enterprise. This serves as an incentive to others.

Sterilization of Food

The scientist has proven that food decay is caused by microorganisms, classed as bacteria, yeasts and molds. Success in canning necessitates the destruction of these organisms. A temperature of 160° to 190° F. will kill yeasts and molds. Bacteria are destroyed at a temperature of 212° F. held for the proper length of time. The destruction of these organisms by heat is called sterilization.

Methods of Canning

There are five principal methods of home canning. These are:

1. Single period cold-pack method.

2. Fractional or intermittent-sterilization method.
3. Open kettle or hot-pack method.
4. Cold-water method.
5. Vacuum-seal method.

Of these methods the one recommended for home use is the single period cold-pack method. It is much the best because of its simplicity and effectiveness and in this book detailed instructions are given for its use. The outlines of the various methods are as follows:

1. Single period cold-pack method: The prepared vegetables or fruits are blanched in boiling water or live steam, then quickly cold-dipped and packed at once into hot jars and sterilized in boiling water or by steam pressure. The jars are then sealed, tested for leaks and stored.

2. Fractional or intermittent-sterilization method: Vegetables are half sealed in jars and sterilized for one hour or more on each of three successive days. This method is expensive as to time, labor and fuel and discourages the home canning of vegetables.

3. Open kettle or hot-pack method: Vegetables or fruits are cooked in an open kettle and packed in jars. There is always danger of spores and bacteria being introduced on spoons or other utensils while the jars are being filled. This method should never be used in canning vegetables. Even with fruits it is not as desirable as the cold-pack.

4. Cold-water method: Rhubarb, cranberries, gooseberries, and sour cherries, because of their acidity, are often canned by this method. The fruits are washed, put in sterilized jars, cold water is added to overflowing, and the jar is then sealed. This method is not always successful as the acid content varies with the ripeness and the locality in which the fruits are grown.

5. Vacuum-seal method: Vegetables are washed, blanched, cold-dipped and cooked as for table use; packed and sealed in especially made vacuum-seal jars. The jars must be well made and the work properly done to bring about satisfactory results.

Simple and Sure

The single period cold-pack method is a simple and sure way of canning. It insures a good color, texture and flavor to the vegetable or fruit canned. In using this method sterilization is completed in a single period, saving time, fuel and labor. The simplicity of the method commends it. Fruits are put up in syrups. Vegetables require only salt for flavoring and water to fill the container.

Another advantage is that it is practicable to put up fruits in small as well as large quantities. The housewife who understands the process will find that it pays to put up even a single container.

Hot-Water Bath Outfit

These are especially desirable. They are convenient for out-door work, having firebox and smoke-pipe all in one piece with the sterilizing vat. As with the home-made outfit containers are immersed in boiling water.

Water Seal Outfits

These are desirable, as the period of sterilization is shorter than in the home-made outfit and less fuel is therefore required. The outfit consists of two containers, one fitting within the other, and a cover which extends into the space between the outer and the inner container. The waterjacket makes it possible for the temperature in the inner container to be raised above 212° F.

Steam Pressure Outfits

Canning is very rapid when sterilization is done in steam maintained at a pressure. There are several canners of this type. Each is provided with pressure gauge and safety valve and they carry from 5 to 30 pounds of steam pressure. This type is suitable for home or community canning.

Aluminum Pressure Outfits

These cookers are satisfactory for canning and for general cooking. Each outfit is provided with a steam pressure gauge and safety valve.

Next month we will publish an article on the "Drying of Fruits and Vegetables."

Lessons in Pruning

By C. H. Brewer, New Jersey

A short time ago a friend remarked, when looking at my trees, "They look fine. How do you manage to grow such fine tops? I wish you would tell me how to prune my trees that way. I can't hire it done."

Neither could I tell him how to do it. This was in a young apple orchard of 50 trees, set nine years, and contained several varieties, in some of which the natural habit of growth was upright and in others it was spreading, each of which required special training from the start in order to produce the fine tops which had attracted



This is a very good type of young pear tree. We are learning to prune less than formerly. We want more leaf surface, which is the stomach of the tree.

his attention. Until the present season I had not used a saw, the pruning having all been done with shears, thinning out the branches in a manner to spread the tops of the varieties of upright growth, and with those of spreading habit pruning so as to throw the tops upward as much as possible.

No Indiscriminate Pruning

I have known of professional tree trimmers (at least they made a business of going round and sawing off limbs of trees), in some cases of old neglected orchards, who did some good for the trees, but in an orchard well started such butchery as they did would have meant the ruin of the trees.

In order to prune trees, shrubs, etc., and to do it right, one must have an idea of what is wanted, and then, bearing in mind the results they wish to secure either in fruit or flowers, work with a view to assist-



Tree Referred to in Lessons in Pruning

ing nature either to produce fine specimens by removing part of the bearing wood, or thinning the fruit, which is a method of pruning late in the season, when we find the set of fruit more than the tree can well sustain.

Good judgment must be used in pruning, and there should be some reason for doing this or that, no sawing off of limbs for the sake of making a brush pile, no allowing them to remain because you are afraid of making one.

Pick 25% to 50% more fruit per day



Stop waste from bruising—prevent ladder accidents

Here's a great ladder, fruit growers! A fruit grower invented it! It *can't be tipped over*, no matter how far you reach out for fruit—or how uneven the ground. Sets firmly, even on a side hill. The tripod is movable, making ladder set level on any footing. Never needs anyone to hold it. Won't upset, creep or totter. Width is only 10 inches. It goes in between the limbs. Reaches places that other ladders won't reach. Tripod can be put right in tree or over the crotch of tree (see small picture at left). You easily get to all the fruit. The

Automatic Safety Climber (Ladder)

Costs no more—means more work done

Instead of rounds or steps of the ordinary kind, there are two steel steps, eleven inches long, to stand on. These move up or down as you step, and automatically lock. You move an inch or a foot, any distance, up or down, and pick at the most convenient level for speed.

The bag carrier also works up and down, same as the step. This, combined with the fact that you have solid, roomy footing and are relieved of the weight of the bag, permits picking at topmost speed. Both hands and body are free.

When ready to descend, you do it by the easy movement of the feet. No

long steps. No strain on legs or body. No dragging of fruit over steps. No bruising, which authorities say often runs as high as 10 per cent of the pick.

The Automatic Safety Climber (Ladder) is easier handled. No time wasted seeking an even spot, or bringing boards to provide a footing.

It weighs less than frame step ladders and is more durable. No screws, nails or mortises. Entirely made of wood and steel bolted together.

It is guaranteed for one year against defects in materials. It should last a lifetime.

Send for This Wonderful Climber Ladder
It Pays for Its Cost in a Week's Picking

We Guarantee It to Give Satisfaction or Money Refunded

Use the coupon and send for an Automatic Safety Climber (Ladder), express charges paid. Try it out now—early in the season—for you'll want to supply it to all your pickers. Labor is scarce this year. It enables two pickers to do the work of four. It prevents accidents. It saves bruising of fruit. It excels in every way any ladder you've ever seen for picking fruit. The sizes and prices are given at the left. Pick out the one best suited for your needs. The 6-foot ladder is a good average size for fruit pickers. Order one. If, after 30 days' trial, you aren't satisfied that the Automatic Safety Climber is the best ladder you've ever used, send it back and we'll refund your money. We refer you to the Citizens' National Bank, Hammond, Indiana. Send the coupon today.

AUTOMATIC SAFETY DEVICE CORP.

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P. O..... State.....

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10-ft. ".....	5.45
12-ft. ".....	6.30
52¢ cents per foot for all lengths over 12 ft.	

Keep These Points in Mind

Thin out the top to admit the air and sunshine to the fruit. Remove any limbs that may cross and rub each other, all dead branches and suckers that may be in the way, and, in case a large limb has to be removed, make a cut with the saw on the under side first. This will prevent the limb from breaking down and perhaps tearing down the bark of the tree. This is an injury and will not heal properly.

It is a good plan to coat the cut surface with lead and oil. Care should be taken to saw quite close to the limb, or body of the tree, as the case may be, so as not to leave any long stub to heal over.

In some cases trees require heading-in. This is notably so with pears, especially dwarf pears, which usually require cutting back each year, but with the standard once in four or five years, so as to prevent the long straggling limbs which will break down when loaded with fruit. This in all cases depends upon the amount of growth made, and requires good judgment so as to keep the top well balanced. Removing any surplus limbs and dead branches is about all that is necessary.

Pruning Other Fruits

Peaches and plums, the Japanese varieties, require about the same method in pruning, removing all dead wood and cutting back so as to keep a steady supply of

bearing wood on hand, that is, a good growth of wood must be had this season in order to mature fruit buds for the next season's crop.

Cherries require but little attention in the way of pruning, yet it is well to go over them and see that there are no broken limbs, dead wood, or branches crossing and rubbing one another. If there are, remove them, always being careful in removing limbs not to tear down the bark of the trees.

The quince requires somewhat different treatment as they bear their fruit on the new growth grown in the spring and, in the case of young trees, require considerable thinning out of the branches in order to give the best fruit. They should be kept well in hand and not allowed to straggle all over. This may be done by cutting back the long shoots or limbs, which will cause them to branch out and make fine bushes, after which the judgment of the grower must be used in allowing a proper amount of growth for the season's crop.

Early Pruning Problems

Young trees, as a rule, do not hold the set of fruit well the first two years, and it is a hard problem to handle them just right until they get to bearing annually, which they are apt to do owing to the lateness of the bloom.

I have often been asked when is the best time to prune. I commence upon apples,

pears and quinces any time after the leaves have fallen, and have an opportunity to get in a few hours' work. The other fruits I prefer to leave until late in March, when I want to get all pruning done, and, after finishing up the trees, I prune grapes first, unless done in November, and then the currants and berry bushes.

With the latter it is always best to wait until danger of hard freezing is past before cutting back the tops of the canes. No set of rules can well be laid down for this work. Observation and study of the growth and habits of trees and bushes, whether fruit or ornamentals, and the results one wishes to obtain, along with a little practical experience, will soon enable anyone interested in the work to do a fairly good job, and as the chances are of removing too little instead of too much growth, there is not much danger in most cases, of doing damage, if the ideas I have tried to combine in this article are carried out.

GET THIS BULLETIN

A very complete and informative bulletin is Farmer's Bulletin 936, U. S. Department of Agriculture, Washington, D. C. Anyone with a spare plot of ground, whether in city or suburbs, should get this bulletin which is entitled, "The City and Suburban Vegetable Garden." Its practicality is apparent and it will prove a tremendous help to the patriotic war gardener.

Kill Aphis

**Before Aphis
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This tiny, sap-sucking insect, scarcely larger than a pin-head, is destroying apple profits all over the country. Feeding with its sharp, mosquito-like bill, it causes dwarfed, deformed, unmarketable fruit. Curls foliage. Weakens trees. Spray with



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and control Aphis, Red Bug, Leaf Hopper and other soft-bodied, sucking insects. Aphis is making its appearance in many sections for the first time. Regarded by many growers as the most destructive apple insect. One aphid produces thousands in a few weeks. Spray with Black Leaf 40 and save your profits. Can be used with lime-sulphur, arsenate of lead, bordeaux and other sprays as recommended, or may be used separately, if desired. Mixes perfectly with water. Costs only about 1c per gallon diluted for the trees. Recommended by agricultural colleges and experiment stations. Send for

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Poultry for Profit

By C. S. Langston, Editor of "Poultry for Profit" Department.

The routine of poultry keeping in the month of June is practically the same as that for May. The hatching for fall and winter laying is over. The main work for June is to keep the chicks growing. If moist mashes have been used in the earlier stages now is the time to change to dry foods. The hot weather which is likely to come in June will deal promptly with uneaten wet mashes and make them unfit for food. And do not fail to keep beef scrap on hand for an occasional feeding. It contains some ground bone, an item of food greatly needed by growing pullets, to make over into chicken bone.

About June Hatching

Those who offer eggs for hatching are surprised to find out how many people are setting eggs in May and June for laying and breeding stock. This practice is all right if the poultry keeper knows what he is doing. Breeders usually sell hatching eggs at a reduced price after June first, and beginners with limited purses are glad to get the best at a price they can afford to pay.

But the best poultry experience advises against the practice of hatching in June for laying and breeding stock. If one must carry immature and non-laying pullets over winter, it is better to postpone the hatching of such stock until July and August. Pullets hatched during those months will commence to lay next spring at the same time as June hatched, thus saving two months' feeding expense.

Cull Out Unpromising Ones

As March and early April hatched pullets will reach frying size in June this is the month to commence culling out undersized or off color individuals. Everybody, of course, expects to eat the cockerels or sell them, but the careful poultry keeper will eat some of the pullets. Breeders who have not made a practice of culling the laying stock from frying size up should test this advice. It may reduce the flock of laying pullets to twenty-four instead of the three dozen expected at the beginning of the season, but the smaller flock will lay just as many eggs and the monthly feed cost will be reduced by \$2.00. The January balance on the right side is partly established by intelligent culling in June.

About Selling Off Hens

It is generally conceded that the keeping of hens beyond two years is unprofitable. This fact supports the practice of disposing of the old stock sometime during the second summer. Shall this dispersal take place at the beginning of summer or at the beginning of the molt in August and September? There is no hard and fast rule governing this matter, but it is well to bear in mind the danger of keeping the hens too late. As they will probably be laying fairly well in August and as eggs will be bringing a fair price one will be strongly inclined to hold on to them until the very last day of laying. The molt may come unexpectedly and then the hens will not be as salable. The best thing to do is to keep close watch of flock and market and act at the right time.

In the meantime wise poultry keepers will be thinking of the next hatching season. He will know which are the good layers and these will be marked for keeping. If the hen flock is large one should not think of setting a single pullet's eggs next spring. Sell off the poor ones any time between June and September, but keep the good ones for breeding.

Regulating Sale of Poultry

Many were caught last January by the ban on the sale of hens and pullets with immature pullets which had eaten heartily all winter but had laid no eggs. The ruling of the Food Administration compelled them to hold such unprofitable stock and when they did commence to lay eggs went to twenty-five cents per dozen. These poultry keepers got caught in both traps. Will they learn that it is not safe to carry immature pullets through the winter season?

The Food Administration was evidently flooded with protests. A conference of poultrymen and national officials was held and Rule 14 was modified and a permanent committee of advice was created. If the poultry members of this committee will stand by their guns the loafing hen will have to stand, sit or die on her merits next winter.

American Fruit Grower

IMP SOAP SPRAY Sure Insect Killer

THE use of Imp Soap Spray on fruit trees, garden truck, ornamental trees, shrubs, etc., will positively destroy all insect pests and larva deposits. Quite harmless to vegetation. Used in country's biggest orchards and estates. Very economical—one gal. Imp Soap Spray makes from 25 to 40 gals. effective solution. Directions on can. Qt. 55c.; Gal. \$1.90; 5 Gals. \$8.50. F. O. B. Boston. Genuine can has Ivy Leaf trade mark. Your money back if Imp Soap Spray doesn't do as claimed. Order direct if your dealer can't supply.

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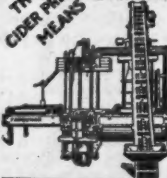
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Our high pressure construction gets all the juice from the apples with minimum power. Presses in sizes from 15 to 400 barrels a day. New Catalogue giving full particulars free on request.

A. B. Farquhar Co., Ltd., Box 103, York, Pa.
We also make Engines and Saws, Saw Mills, Thrashers, etc.

What is Said About Spray Guns

Knowing the intense interest taken in spray guns by growers everywhere a few weeks ago we sent out the letter that appears below addressed to Mr. Clark Allis, Medina, N. Y., to fruit growers in every section of the country. A number of their replies appear in this article. Without exception, every one endorses the spray gun. We are using one in our own orchards and find that we cannot urge fruit growers too heartily to add a spray gun to their equipment.

MR. CLARK ALLIS, Medina, N. Y.

DEAR SIR—We are making an investigation to determine the value and disadvantages of the spray gun to fruit growers.

Will you do us the favor to give us your experience with the use of the spray gun and return to us in the enclosed stamped envelope.

We will appreciate your courtesy in the matter and will be very glad to return the favor at any time possible.

Yours very truly,

AMERICAN FRUIT GROWER,
Samuel Adams, Editor and Publisher.

Would not be without a spray gun, for it's worth its weight in gold. It's the first time my men ever wanted to spray and now they don't want to quit. One rig now does more and better work with much less liquid than three rigs formerly.

Very truly, CLARK ALLIS, Medina, N. Y.

Yours of 23d inst. inquiring about the merits and demerits of the spray gun is at hand. In reply, will say that it will do much more work, as the volume of spray is wider and more is thrown in a given time. It does better work as the spray goes with greater force. It goes much farther than spray from the end of a pole. It is operated more easily and quickly, changing from a fine to a coarse spray in a fraction of a second. For best results it should have a pressure of about 200 pounds, the more the better. It might appear at a disadvantage as a calyx spray for it has a straight nozzle, if spraying from the ground. I think with proper care in holding the gun this would be largely overcome, especially if the operator is spraying from the top of the tank or a derrick. But even if it were not desirable for a calyx spray, I would not be without one for the other sprays. They seldom clog, but if they should, the obstruction can be removed easily—in a minute. The price (\$12.00) seems high, but one will last for years. There is nothing to get out of order. Yours very truly,

W. F. BIRD, Ann Arbor, Mich.

We used the spray gun last season and it gave us great satisfaction, as it does away with one man and gives us a stronger spray. We call it the "Little Wonder."

Yours sincerely,

JOSEPH WADDELL, Hemmingford, Que.

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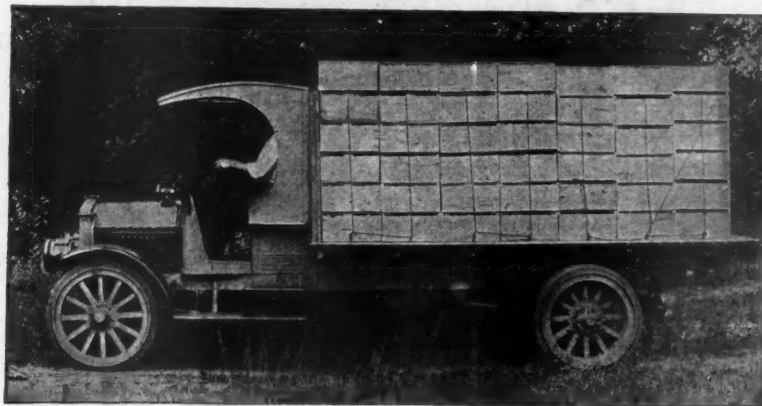
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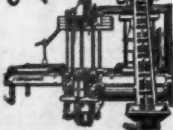
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Poultry for Profit

By C. S. Langston, Editor of "Poultry for Profit" Department.

The routine of poultry keeping in the month of June is practically the same as that for May. The hatching for fall and winter laying is over. The main work for June is to keep the chicks growing. If moist mashes have been used in the earlier stages now is the time to change to dry foods. The hot weather which is likely to come in June will deal promptly with uneaten wet mashes and make them unfit for food. And do not fail to keep beef scrap on hand for an occasional feeding. It contains some ground bone, an item of food greatly needed by growing pullets, to make over into chicken bone.

About June Hatching

Those who offer eggs for hatching are surprised to find out how many people are setting eggs in May and June for laying and breeding stock. This practice is all right if the poultry keeper knows what he is doing. Breeders usually sell hatching eggs at a reduced price after June first, and beginners with limited purses are glad to get the best at a price they can afford to pay.

But the best poultry experience advises against the practice of hatching in June for laying and breeding stock. If one must carry immature and non-laying pullets over winter, it is better to postpone the hatching of such stock until July and August. Pullets hatched during those months will commence to lay next spring at the same time as June hatched, thus saving two months' feeding expense.

Cull Out Unpromising Ones

As March and early April hatched pullets will reach frying size in June this is the month to commence culling out undersized or off color individuals. Everybody, of course, expects to eat the cockerels or sell them, but the careful poultry keeper will eat some of the pullets. Breeders who have not made a practice of culling the laying stock from frying size up should test this advice. It may reduce the flock of laying pullets to twenty-four instead of the three dozen expected at the beginning of the season, but the smaller flock will lay just as many eggs and the monthly feed cost will be reduced by \$2.00. The January balance on the right side is partly established by intelligent culling in June.

About Selling Off Hens

It is generally conceded that the keeping of hens beyond two years is unprofitable. This fact supports the practice of disposing of the old stock sometime during the second summer. Shall this dispersal take place at the beginning of summer or at the beginning of the molt in August and September? There is no hard and fast rule governing this matter, but it is well to bear in mind the danger of keeping the hens too late. As they will probably be laying fairly well in August and as eggs will be bringing a fair price one will be strongly inclined to hold on to them until the very last day of laying. The molt may come unexpectedly and then the hens will not be as salable. The best thing to do is to keep close watch of flock and market and act at the right time.

In the meantime wise poultry keepers will be thinking of the next hatching season. He will know which are the good layers and these will be marked for keeping. If the hen flock is large one should not think of setting a single pullet's eggs next spring. Sell off the poor ones any time between June and September, but keep the good ones for breeding.

Regulating Sale of Poultry

Many were caught last January by the ban on the sale of hens and pullets with immature pullets which had eaten heartily all winter but had laid no eggs. The ruling of the Food Administration compelled them to hold such unprofitable stock and when they did commence to lay eggs went to twenty-five cents per dozen. These poultry keepers got caught in both traps. Will they learn that it is not safe to carry immature pullets through the winter season?

The Food Administration was evidently flooded with protests. A conference of poultrymen and national officials was held and Rule 14 was modified and a permanent committee of advice was created. If the poultry members of this committee will stand by their guns the loafing hen will have to stand, sit or die on her merits next winter.

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What is Said About Spray Guns

Knowing the intense interest taken in spray guns by growers everywhere a few weeks ago we sent out the letter that appears below addressed to Mr. Clark Allis, Medina, N. Y., to fruit growers in every section of the country. A number of their replies appear in this article. Without exception, every one endorses the spray gun. We are using one in our own orchards and find that we cannot urge fruit growers too heartily to add a spray gun to their equipment.

MR. CLARK ALLIS, Medina, N. Y.

DEAR SIR—We are making an investigation to determine the value and disadvantages of the spray gun to fruit growers.

Will you do us the favor to give us your experience with the use of the spray gun and return to us in the enclosed stamped envelope.

We will appreciate your courtesy in the matter and will be very glad to return the favor at any time possible.

Yours very truly,

AMERICAN FRUIT GROWER,
Samuel Adams, Editor and Publisher.

Would not be without a spray gun, for it's worth its weight in gold. It's the first time my men ever wanted to spray and now they don't want to quit. One rig now does more and better work with much less liquid than three rigs formerly.

Very truly, CLARK ALLIS, Medina, N. Y.

Yours of 23d inst. inquiring about the merits and demerits of the spray gun is at hand. In reply, will say that it will do much more work, as the volume of spray is wider and more is thrown in a given time. It does better work as the spray goes with greater force. It goes much farther than spray from the end of a pole. It is operated more easily and quickly, changing from a fine to a coarse spray in a fraction of a second. For best results it should have a pressure of about 200 pounds, the more the better. It might appear at a disadvantage as a calyx spray for it has a straight nozzle, if spraying from the ground. I think with proper care in holding the gun this would be largely overcome, especially if the operator is spraying from the top of the tank or a derrick. But even if it were not desirable for a calyx spray, I would not be without one for the other sprays. They seldom clog, but if they should, the obstruction can be removed easily—in a minute. The price (\$12.00) seems high, but one will last for years. There is nothing to get out of order.

Yours very truly,
W. F. BIRD, Ann Arbor, Mich.

We used the spray gun last season and it gave us great satisfaction, as it does away with one man and gives us a stronger spray. We call it the "Little Wonder."

Yours sincerely,

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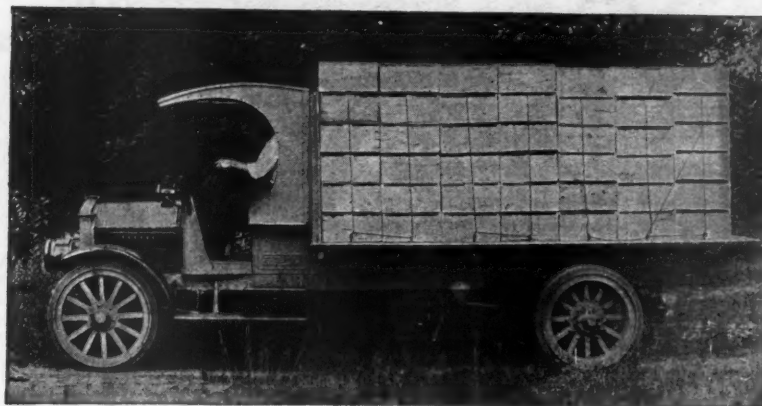
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Well-Sprayed Orchard in June

By A. S. Colby, Editor of "Diseases of Trees and Fruit" Dept.

WITH the arrival of the rare June days, the fruit grower finds that the real work of summer in controlling the numerous insect and fungous pests is on in full swing. No matter how promising is the prospect of a good fruit crop at blossoming time, the hopes of the orchardist will surely be dashed to the ground if no effort is made on his part to control orchard troubles.

This has been a somewhat discouraging spring for many fruit growers. For example, in New England and parts of New York, the peach crop is practically a failure due to severe winter killing. In the central states from Ohio through Indiana, Illinois, and even down to Missouri and Kentucky, the same thing is noted. Michigan promises about 25% of a crop, due to peculiar conditions of protection from extremes in winter, through the bodies of water in the peach growing regions of that state. Some other peach growing sections, however, such as Georgia and California, report excellent prospects, with Delaware and Pennsylvania, fair. The cold, wet weather prevailing through parts of the central states during April has interfered, to some extent, with the set of pears, and in some sections the cherry crop has also suffered. As far as known at this time, however, an excellent set of apples is looked for.

So, in spite of poor prospects in some localities, reports as a whole seem to be favorable, and with careful orchard management through the season, a crop of most fruits seems assured.

What orchard troubles need special attention this month? With due allowance for the fact that seasonal conditions vary greatly over the northern and central states, so that in some sections, for example, the blossoms have fallen from the plum trees which are now ready for the curculio and brown rot spray, while in other sections, the first summer spray, before the buds open, has just been applied, an attempt will be made to suggest the various control measures for insect and fungous troubles in the orchard for the month of June.

First, however, it will be necessary to briefly review the subject of spray materials. Lime-sulphur, self-boiled lime-sulphur, and bordeaux are the standard materials used to control fungous diseases. It is so seldom, however, that fruit and foliage are free from attack by insect pests, that most of the sprays applied in regular orchard practice are made up of a combination of one of the above mentioned fungicides, and arsenate of lead, the most common insecticide. The relative merits of bordeaux and lime-sulphur as fungicides still offer material for ardent discussion by those favoring one or the other, and may be settled only by a compromise, agreeing that each has its place and neither can be wholly dispensed with. Bordeaux will almost certainly injure the fruit and foliage in rainy weather when the temperature is low, at which time lime-sulphur causes no injury. In the hot summer months, however, bordeaux is safer than lime-sulphur which often brings on the so-called "lime-sulphur burn" on the fruit. Hence, for sprays to be applied up to the end of June, lime-sulphur is preferable, with bordeaux when later use is necessary.

Spray Formula

The regular formula for making up the lime-sulphur arsenate of lead spray for summer use is as follows: If the commercial lime-sulphur is used, 1½ gallons of the same with 2 pounds of paste, or 1 pound of powdered arsenate of lead should be contained in 50 gallons of spray material. If the lime-sulphur is homemade, use twice as much of it, 2½ gallons to 50 gallons of spray material, including arsenate of lead as above.

If apples have just blossomed and the bloom is about off, as may be the case in the north, the calyx spray should be applied at this time. This is the principal spray for the codling moth, one of the worst insect enemies of the apple, but equally as important in controlling apple scab, a serious fungous disease. It has been found that both codling moth and scab are commonly ready for work on the young fruits as soon as they start to form, and on that account this spray is one of the most important of the season. Other insects con-

trolled to some extent are cankerworms, tent caterpillars, green-fruit worms, bud moths and plum curculios. Start to apply this spray when most of the petals have fallen, and complete it before the blossom ends have closed. Lime-sulphur arsenate of lead, the formula of which has been given above, should be used.

Ten days after the petals fall is the time for the next application of spray. This will be the first June spray for many orchardists. Its purpose is chiefly to guard against apple scab especially when the weather is cool and rainy, as is quite often the case at this time, especially in the north, where under no conditions should this spray be omitted. Lime-sulphur arsenate of lead, as recommended for the calyx spray, should be used. The arsenate of lead is added for further protection against codling moths, curculios, and any leaf-eating caterpillars present.

Spray for Apple Blotch

Three weeks after the petals fall, from the last of May to the middle of June, depending on climatic conditions, the principal spray against apple blotch should be applied, using the same materials and the same amounts as above mentioned. This spray is effective against various insects and fungous troubles coming on since the last application. Five weeks after the blossoms fall, another spray may be needed in sections where blotch is commonly found, using lime-sulphur alone.

The recommendations for pears are practically the same as for apples. Of course where their blossoming season precedes that of the apples, the relative intervals between sprays should still be followed.

June spraying of plums should be depended upon to control leaf diseases, brown rot, and curculio during that month. Applications should be made immediately after the blossoms fall, and again in about ten days, using the same mixture as for the calyx spray for apples, above. In order to control plum troubles successfully, it should be understood that additional sprays are necessary after June, in some cases every two weeks till picking time.

Sour cherries are sprayed at similar times with the same mixture for the control of the same troubles as plums. In the north where leaf spot has been serious, orchard sanitation is of great value in burying, by cultivation, the dead cherry leaves early in the spring, from which the leaf spot infection starts anew.

Peach Sprays

Probably the most important troubles to combat on peaches are scab, brown rot, and plum curculio. Sprays applied ten days after the bloom should of course have been on along ago. Four weeks after the fall of the bloom, another important application should be made, and for mid-season varieties, still another one or two, finishing a month before the fruit is ripe. The object in peach spraying, especially if the weather is damp and warm, as the fruit grows, is to keep the fruit well covered by a protective fungicidal coating. Self-boiled lime-sulphur (8-8-50) with the regular amount of arsenate of lead added is used as a spray.

The above directions for spraying fruit trees will vary somewhat from year to year, depending on local conditions, such as temperature, amount of rainfall, and severity of insect and fungous attack. The main idea, however, is to keep the young fruits coated with spray mixture during the month, so that while additional sprays are needed later on in the season, if the above directions have been followed, an excellent start will have been made.

WHAT THEY SAY ABOUT US

Dr. A. B. Dennis, of Iowa, has something very nice to say about us and it sounded all the better because it was not addressed to ourselves but to a friend who thoughtfully passed on the good word. Says Dr. Dennis: "I am delighted with my first number of the AMERICAN FRUIT GROWER. Delighted with its able, instructive, as well as constructive, horticultural pages, chuck full of intense reading for all who think and read its pages. I am delighted with it and anxious to see other numbers of this more than welcome journal."

It pays to advertise in the Classified Columns of the American Fruit Grower



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Twice the Power at Half the Cost
Saves 2 to 30 H.P.—Select Your Own
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2143 Oakland Ave., Kansas City, Mo.
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Write Your
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Save from \$15
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**SKINNER
SYSTEM OF IRRIGATION**

Get 10,000
Quarts of Berries
Per Acre

Last year 10,000 quarts of strawberries per acre was a very usual yield in the United States with the Skinner System. 2,000 quarts was the average yield without it.

Try it out on a small scale first. Send \$18.75 for a 10-ft. Sectional and Movable Sprinkling Line. Waters 2500 square feet. Send for Catalog.

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**YOU CAN'T CUT OUT A BOG SPAVIN ON
THOROUGHPIN**
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ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.

and you work the horse same time.
Does not blister or remove the
hair. \$2.50 per bottle, delivered.
Will tell you more if you write.
Book 4 R free. **ABSORBINE, JR.**,
the antiseptic liniment for manking,
reduces Varicose Veins, Ruptured
Muscles or Ligaments, Enlarged Glands, Wens,
Cysts. Ailays pain quickly. Price \$1.25 a bottle
at druggists or delivered. Made in the U. S. A. by
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BURNER**
Makes Any Stove a Gas Stove

Free Sample
to Workers

Makes its own gas
from Kerosene (coal oil).
Gives every home a gas stove. Absolutely safe. Cheapest
Wonderful Labor Saver fuel known. Agents
just coining money.
Women wild about it. No coal or ashes to carry. No more
danger from gas.
Safe, Clean, Odorless, Cheap
Every home a prospect. Low price makes quick sales. Easy
to carry and demonstrate. Big profits. Your territory is open.
Write today. Thomas Burner Co., 3570 Gay St., Dayton, Ohio

THE SELF-OILING WINDMILL
has become so popular in its first three years that
thousands have been called for to replace, on their
old farms, other makes of mills, and to replace, at
small cost, the gearing of the earlier
Aermotors, making them self-oil-
ing. Its enclosed motor
keeps in the oil and
keeps out dust and
rain. The Splash Oiling
system constantly
feeds every bearing with oil pre-
venting wear and enabling the
mill to pump in the lightest breeze.
The oil supply is renewed once a year.
Double Gears are used, each carrying half the load.
We make Gasoline Engines, Pumps, Tanks,
Water Supply Goods and Steel Frame Saws.
Write **AERMOTOR CO., 2500 Twelfth St., Chicago**

SPRAY YOUR ORCHARD WITH
**Du Bois Lime - Sulphur
SOLUTION**

Lime-Sulphur is the best known Fungicide; the safest
and surest for San Jose Scale. Du Bois Lime-Sulphur in
concentrated solution is guaranteed free from sediment,
and not to crystallize. Manufactured by
H. A. DU BOIS & SONS, Cobden, Illinois

**Hydraulic Cider
Press Profits**

EXTRA
HEAVY
PRESSURE
GETS RESULTS

E. E. YAN ATTA & CO., 114 Penn Ave., Olean, N. Y.

Livestock and Dairy

A Notable Cow

The Holstein-Friesian cow Katy Gerben, owned by the professor of dairying at the University of Nebraska, in seven lactation periods has produced 125,120 pounds of milk containing 3,772 pounds of butterfat. She had yielded as much food for mankind in this period as would 47 steers of average weight, and during her life she had given to the dairying world, in addition to six sons, four heifers, some of whom are maintaining the record of their mother.

Professor Frandsen says, "As Katy Gerben happens to have been in the university herd practically all of her life, most of her milk has been sold at 10 cents per quart. On this basis the income from this source is \$5,317." Add to this the value of her six sons and four daughters and some conception of what a good cow is really worth will be gained.

Maintaining Bulls Co-Operatively

The most economical way of improving ordinary herds and family cows is by the use of good pure-bred bulls of the same breed as the predominating blood. A bull that will improve the cows of a community must come from a line of cows, which for three or four generations has made records of 450 pounds or more butterfat in one year. But rich blood will cost more than the small dairy farmer can afford to spend. The best plan is for a community to buy and maintain the community bull co-operatively. On the basis of 60 cows to a bull the cost should not exceed \$5 per cow, and as every owner pays according to the number of cows kept, there would be no trouble for any farmer to calculate his share of the purchase and maintenance price.

An Endless Chain of Pigs

A scheme for starting an endless chain of pigs is outlined in a Richmond (Va.) paper as follows:

Pig culture by boys on an endless chain plan is to be inaugurated in Henrico county. As pork is selling at a price never before dreamed of by the farmers in this county, the young agriculturists are enthusiastic over the bright prospect ahead. This endless chain plan was worked out by W. L. Kirby, farm demonstrator and agricultural agent for the county. At the State Fair last fall Mr. Kirby won \$200 in prizes with an exhibit made by the county. This prize money has been invested in 16 pure-bred Duroc-Jersey female pigs and these are to be given to 16 boys in the county. The only condition in the gift is that the pigs are to be properly cared for and two female pigs from the first litter shall be given to Mr. Kirby. The 32 female pigs thus obtained will be given out to 32 boys of the county on the same condition. The second return to the farm agent will be 64 which will go out to 64 boys of the county. This plan will help the boys of the county and at the same time it will improve the stock of the county.

Plant Some Special Crop

The high prices now commanded by the leading grains will tend to draw farmers away from making other plantations such as cowpeas, turnips, stock beets, and the like. The safest plan is to keep something growing from early spring to late fall. The in-between-crops will help to vary the ration for stock next winter and at the same time make the standard grains and fodders go much further.

DON'T OVERLOOK RENEWALS

By overlooking the expiration date on the address label of your **AMERICAN FRUIT GROWER**, you may miss an important issue of the magazine. Renew your subscription promptly. \$1.00 for three years; or 50 cents for one year. All subscriptions are stopped promptly at expiration.

BLISTER CANKER

The Nebraska Experiment Station issues a bulletin, No. 161, on "Methods of Controlling Blister Canker." It looks as if our old friend Ben Davis may have to go to cure the spread of this trouble. The best cure lies in selection of varieties for planting that are not susceptible to the blister canker. Ben, and trees of his type, are very susceptible. Some will shed tears over this announcement. Others would go dry-eyed to old Ben's funeral. For free copy of this bulletin, write to Bulletin clerk, University Farm, Lincoln, Neb.



THE "ACID" TEST OF VALUE

At an auction sale the buyer makes the price.

Auction prices are apt to be lower than the real value warrants, rather than higher.

In any case, auction prices represent the estimate of value placed on the article by the buyer and not the seller.

During the past few months, the cow owner's appreciation of the unusual values offered in De Laval Cream Separators has been demonstrated in a most remarkable way.

From one state after another have come reports of the sale of De Laval machines at farm auctions—machines which had been in steady use for several years—at prices, in most cases, only two or three dollars less than the sale price when new; sometimes at practically the same price at which the machine was sold when new; and, in several instances, at even more than the original list price.

In February, at a Missouri auction sale, a De Laval in use two years was sold for \$1.25 above the original purchase price. In Kentucky a farmer paid for a De Laval \$2.00 more than the original price, at an auction sale. Last January, in West Virginia, a second-hand De Laval sold at auction for \$2.50 less than the original catalog price. On January 15th, in Ohio, a De Laval machine in use a year was sold at auction for exactly the same price it brought when new, and at another point in Ohio a De Laval in use several months brought several dollars more at auction than the original list price. In the province of Ontario, early in April, a De Laval in use since 1916 brought at auction a price \$5.00 higher than the owner paid for it when new.

In contrast with these prices paid for De Laval machines at farm auctions, it is interesting to note that when other makes of cream separators are offered they are usually listed simply as a "cream separator," and not by name. Often there is no bid for such machines and their usual auction prices run from \$10 to \$15. We have never heard of one that sold at auction for half its original cost.

Perhaps you may not have had an opportunity to learn of the cleaner skimming, easier turning, the great durability and the splendid service given by the De Laval machines, but here is the strongest and best sort of evidence that those who do know cream separators appreciate that the man who buys a De Laval gets good and generous value for the purchase price. And further, that even after a De Laval has been several years in use, it is practically as good as new.

If you are without a cream separator or in need of a new or better one, why not see the local De Laval agent immediately? If you don't know him, address the nearest De Laval office as below, for any desired particulars.

THE DE LAVAL SEPARATOR CO.

165 Broadway, New York

29 E. Madison St., Chicago

Learn Auto
and **TRACTOR BUSINESS**
\$90 to \$300 Per Month

Thousands have learned here in 60 seconds and are making big money as repair-men, drivers and superintendents. Many now own their own gas-
arage, making \$200 to \$500 per month. Our
big free book explains how you can do it.
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2370 Oak St., Kansas City, Mo.

DAISY FLY KILLER

placed anywhere, at-
tracts and kills all
flies. Neat, clean, or-
namental, convenient,
cheap. Lasts all
season. Made of
metal, can't spill or be
over; will not soil or
injure anything.
Guaranteed effective.
Sold by dealers, or 5 cent
express prepaid for \$1.

HAROLD SOMERS, 290 DeKalb Avenue, Brooklyn, N.Y.

Kindly Mention American Fruit Grower when writing to Advertisers

Federal Farm Loan Bonds Supply Funds To Finance Farmers

The Federal Farm Loan Act has these big, vital, national purposes:

- To provide capital for agricultural development.
- To create standard forms of investment based upon farm mortgage.
- To equalize rates of interest upon farm loans.
- To furnish a market for United States bonds.
- To create depositaries and financial agents for the Government.

IN carrying out these purposes Federal Farm Loan Bonds offer safe and sound long term investments for the thrifty, based on the assembled farm mortgages of America; increase farm production, and make it easier for farm tenants to buy and own farms.

Federal Farm Loan Bonds are issued by twelve regional Federal Land Banks. These banks and the entire system are examined, supervised and operated by the Federal Farm Loan Board, a bureau of the Treasury Department at Washington. Every Federal Farm Loan Bond is the obligation of the Federal Land Bank which issues it, and also of all the other eleven Federal Land Banks. Every Federal Farm Loan Bond is based upon massed and aggregated farm mortgages pledged as security. No mortgage is made for more than fifty per cent of the value of the farm as fixed by a Federal Land Bank appraiser appointed by the Federal Farm Loan Board in Washington. The Treasury motto on farm loans is "safety first."

All loans are made through cooperative organizations of farm borrowers, termed National Farm Loan Associations, very similar in character to city building and loan associations. Each mortgage is guaranteed by the Association. In addition to the security of the farms themselves, each mortgage is backed by the resources of all the twelve Federal Land Banks, including a cash subscription by each association to the stock of the Land Bank equal to five per cent of all loans, and in addition thereto there is a five per cent double liability on the part of the borrowers. No farm loan security has ever been offered so strengthened and buttressed by Government inspection and control, and such adequate resources back of the obligations.

Federal Farm Loan Bonds bear five per cent interest, payable semi-annually, May and November, and, in the language of the Federal Farm Loan Act, "shall be deemed and held to be instrumentalities of the Government of the United States, and as such they and the income derived therefrom shall be exempt from Federal, State, Municipal and local taxation." It will be noted that this exemption is complete. Interest on these bonds need not be included in income tax returns. These bonds are issued in denominations of \$25, \$50, \$100, \$500 and \$1000 and in either coupon or registered form. They are due in 20 years and redeemable after 5 years.

The buying of Federal Farm Loan Bonds is not only a profitable transaction but is a patriotic act. This system enables the small farmer to borrow money on terms as favorable as the large farmer. For the first time in the history of American agriculture the farmer, through the issue of Federal Farm Loan Bonds, is enabled to secure the capital which he has so badly needed.

All mortgages issued under this Act are paid off in installments, so that with every interest payment there is paid an installment of the principal, and when the last interest payment is made the mortgage is extinguished. Each mortgage grows smaller year by year and the security is to that extent rendered greater. The

standard form of mortgage now prevailing runs for thirty-five years, and the first effect of the taking out of a mortgage in the Federal Farm Loan System is to put the farmer in easier circumstances so as to enable him to extend his operations, become a greater producer, buy more machinery, intensify his farming, supply himself with livestock, and otherwise take a stronger financial position. He becomes a better customer of the bank, of the store, and of the manufacturer.

Money is loaned under this system only for certain specific purposes, all connected with the development of agriculture. Land owners who rent their farms out cannot borrow under the Act. The financial pressure of the system is exerted always in the direction of strengthening the position of the actual farmer as against the landlord. Loans may be made for the following purposes and for no other:

- To provide for the purchase of land for agricultural uses.
- To provide for the purchase of equipment, fertilizers and livestock.
- To provide buildings and for the improvement of farm lands.
- To liquidate certain outstanding indebtedness of the farmer.

Such operations as the provision of necessary buildings, machinery, seeds, clearing, tiling, draining, fencing, etc., are carried on by farmers borrowing under this system on a large scale, and always with increased farm efficiency in view. The farmer who has financed himself through a Federal Farm Loan mortgage is at once relieved of anxiety as to the falling due of his mortgage. He knows exactly what he can do for thirty-five years in the future. The interest rate to him at present is five and one-half per cent per annum, plus a one per cent amortization charge, so that by the payment of six and one-half per cent per annum his loan is extinguished in thirty-five years.

Lack of capital and lack of skilled, reliable labor are the two greatest drawbacks to agricultural progress. Federal Farm Loan Bonds are doing their part to remove both these obstacles. With sufficient capital, labor-saving machinery and up-to-date equipment, will come a great increase in the farmers' productive power.

Whatever increases the earning power of the farmers of your community directly contributes to your own prosperity. The Federal Farm Loan System then, is your affair as it is that of every American citizen. Put your shoulder to the wheel and start the sale of Farm Loan Bonds in your community. Buy as many yourself as you can afford and talk them to your friends and neighbors.

Federal Farm Loan Bonds are printed in the Bureau of Engraving and Printing in Washington, and have the same protection against counterfeiting that is enjoyed by the currency in your pocketbook.

In the language of the Farm Loan Act, Federal Farm Loan Bonds "shall be a lawful investment for all fiduciary and trust funds and may be accepted as security for all public deposits." You can offer your banker no better collateral.



You can buy Federal Farm Loan Bonds at 101 and accrued interest. Order through any bank, trust company, broker or express agent, or write to any one of the twelve Federal Land Banks:

Springfield, Mass.
Baltimore, Md.
Columbia, S. C.

Louisville, Ky.
New Orleans, La.
St. Louis, Mo.

St. Paul, Minn.
Omaha, Nebr.
Wichita, Kans.

Houston, Texas
Berkeley, Calif.
Spokane, Wash.

This space is contributed by
AMERICAN FRUIT GROWER CO
SAMUEL ADAMS, Publisher

or address:
FEDERAL FARM LOAN BOARD
TREASURY DEPARTMENT
WASHINGTON, D. C.

Originating Flowers

By F. L. Severson, Minnesota

It is possible, pleasing and sometimes profitable, to originate new varieties of flowers. Originating flowers can be done by a novice, and is well worth the undertaking.

When the roses come again do not pick every one, but let some of your best varieties go to seed and then sow the seed at once, out of doors, and cover with a quarter of an inch of fine, light soil, in a protected place free from any kind of devastation. Cover with a light mulch and leave the bed in this condition until spring, when the mulch should be renewed. You will raise something in the line of roses that will look good to you some fair June day. I have enjoyed this line, and nature has paid me well for my undertaking.

Peonies From Seed

Growing peonies from seed brings pleasure, and often a profit, to the person who will give this work a fair trial. When your peonies are through blossoming, and are opening their pods, gather their seed and plant about an inch deep in a well-prepared seed bed. For the first two years, mulch this bed at seeding time in the fall, and uncover in the spring. Keep them free from weeds. In the latter part of August or the fore part of September of the second year after planting in the soil, dig and plant all the little roots from six to twelve inches apart, in rows thirty inches apart. Cultivate and care for them until they bloom, which will be two or three years later. Perhaps you will have some that will tax your patience on account of their tardiness, but be patient until they all bloom.

Choose those that look the best to you and transplant in September. Plant three feet apart in the row and let the rows be four feet apart. You will be surprised with the results of your undertaking. Nature's artist has made no two peonies alike. All are different, and neither pen nor words can describe them.

WORKING THE ORCHARD OVERTIME

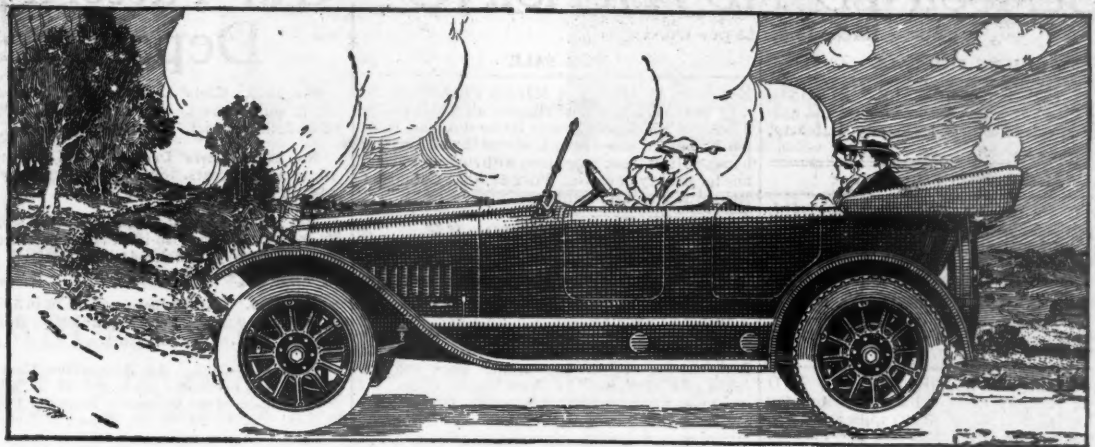
The fertile soils of California can be made to work overtime, so to speak, by supporting almost full crops of various kinds, especially while the trees are young. While the grain and sweet sorghums might impoverish thin soils, one to three crops will not noticeably effect the trees on the rich valley lands. However, such crops should not be allowed to crowd the trees. When the rows are four feet from the trees it would be best to pull up a few of the sorghum plants so that none would stand nearer than six feet from the one-year old trees, ten feet from the two-year olds and twelve feet from three or four-year olds.

Special attention should be given to watering the trees as they must not be robbed of their full moisture supply if they are to be kept growing vigorously. While some sorghums and sudan grass might be grown in orchards up to eight or nine years of age, it is doubtful if such crops would pay on account of too much shading. An experiment of this kind is being tried this year in a nine-year old orchard at the University Farm at Davis. It is highly probable that the intercrops will suffer more than the trees.

Beans could safely be grown in orchards of any age where there is not too much shade. The same is equally true of potatoes, tomatoes, and vegetables of all kinds, but all of these would have to be irrigated. There are many small orchards that could be made to yield feed enough to support hundreds of chickens, turkeys, or rabbits, by growing alfalfa among the old trees and dwarf silo and sunflowers where the trees are young. Where the trees are not yet in bearing, enough feed could be grown to keep a cow and perhaps a few pigs.

The wise man of the East, the heathen Chinese, pays his doctor for keeping him well. When he falls sick the pay stops, for the doctor has failed in his duty. It must be trying at times when one is feeling fine to pay a doctor's bill, but how consoling it must be when one is ill and gets cured free of charge. It's much the same with insurance. We just naturally hate to pay on that policy so long as all goes well—but how about it when the house or barn burns?

Pretzels are the false love knots with which Germany sought to hold the affections of Uncle Sam.



Today's Supreme Car In the \$1250 Class

The Latest Mitchell Six—120-In. Wheelbase—40 H. P. Motor

HERE is the latest result—an amazing result—of Mitchell efficiency methods.

A five-passenger six-cylinder car of unusual size and roominess, with unusual power—unique in beauty and equipment—for only \$1250 at factory. At a price much below any other car of like size and power and class.

ing springs, our reversible headlights, our dashboard engine primer—nearly all our extra features.

Yet it sells at a price which is not matched in any comparable car.

Nothing Like It

There is nothing like this value in the fine-car field today. We can give it in the Mitchell only because of our wonderful factory efficiency.

We build the complete car—chassis and body—in a model plant. In a mammoth plant, built and equipped by experts to produce this one type economically. We eliminate all waste. To produce such a car at the Mitchell price in an ordinary factory would be utterly impossible.

When you buy a fine car for many-year service, this is the car you'll want. You will know that when you see it. If you do not know our nearest dealer ask us for his name.

Send for latest catalog to Mitchell Motors Co., Inc., Racine, Wis.

To Meet Today's Idea

Motor car prices have had to advance in late years, with the multiplied cost of steel. To counteract this many economies are practiced. Some Sixes have returned to Fours. Wheelbases have been shortened, equipment reduced, and standards sacrificed sometimes.

The Mitchell takes another course. It is building a Light Six, identical in standards, in luxury and beauty with the \$1525 Mitchell. It has nearly all the Mitchell extras.

It has all the Mitchell over-strength. It has our power tire pump, our shock-absorb-

\$1250 F. O. B.
Racine

120-Inch Wheelbase
40 Horsepower Motor
5 Styles of Bodies

Mitchell
Sixes

\$1525 Mitchell
C-42

—a roomy 7-passenger Six, with 127-inch wheelbase and a highly developed 48-horsepower motor.
Three-Passenger Roadster, \$1490
Club Roadster, \$1560 Sedan, \$2275
Cabriolet, \$1990
Coupe, \$2135 Club Sedan, \$2185
Four-Passenger Surrey, \$1625
All prices f. o. b. Racine, and subject to change without notice.

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Latest Oliver Nine—standard visible, brand new. Direct from factory to you, saving you \$51. Easy terms. The exact machine used by big business. Over 600,000 sold.

Our startling book "The High Cost of Typewriters—The Reason and the Remedy" tells the story. Get your copy today. It is free. A \$100 machine for \$49.

This book tells how simple it is to get a new Oliver for free trial—our low terms—a year to pay. Send for your copy today.



THE OLIVER
TYPEWRITER CO.
3706 Oliver Typewriter Bldg.
Chicago, Ill. (62)

INSECT TRAP—Just Patented



Wire frame holds 4 sheets of sticky fly paper radial to the lantern. Insect pests fly around this light and get caught. Protects growing fruit and crops. Good mosquito catcher. Circular.
Frank Kelper, 6 State St., Rochester, N.Y.

Buy a Home in Albemarle

and live among the most delightful people in the world, in a section that is rich in the historical lore of the country. You will make money and friends, live longer and happier, and give your children a richer heritage in future happiness.

WRITE FOR A FREE BOOKLET

Charlottesville Chamber of Commerce, Charlottesville, Va.

Kirstin
One-Man
Stump Puller

Cheapest Way to Clear Land

No horses needed—no extra help required—one man alone pulls all kinds of stumps quick and easy. The Kirstin holds record for lowest land clearing cost. New patented features give enormous strength and power. Four sizes—low prices—time payments—30-day try-out on your farm. Write today for big, new, free Kirstin land clearing book.



A. J. KIRSTIN CO.
2904 Ludington St., Escanaba, Mich.

Kindly Mention American Fruit Grower when writing to Advertisers

CLASSIFIED ADVERTISING

Rate, 15 cents per word

CHICKS FOR SALE

DAY-OLD CHICKS FOR SALE. STRONG, healthy chick, at reduced prices. Pure and utility stock; circular free. Old Honesty Hatchery, New Washington, O.

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A SMALL FARM IN CALIFORNIA WILL make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Low prices. Easy terms. Sure profits. Hospitable neighbors. Good roads, schools and churches. Write for our San Joaquin Valley illustrated folders free. C. L. Seagraves, Industrial Commissioner, Santa Fe Ry., 1967 Railway Exchange, Chicago.

AN ORCHARD HOME, UP-TO-DATE AND complete in every detail. Ideally located 110 acres. Heart of Blue Ridge. 2,500 apple and peach trees in full bearing. Buildings new and modern. Running spring water to house, barn and orchard. Main dwelling, 5 rooms and bath; three other houses. Barn, implement and packing sheds, complete equipment of stock, implements, etc. Will pay splendidly on investment. An ideal self-supporting year around home or a summer home that will pay for itself. Price \$15,000. Address Virginia, Care AMERICAN FRUIT GROWER, 329 Plymouth Court, Chicago.

A FARM HOME FOR YOU, WHERE CROP failures are unknown, can be found in Eastern Washington, Northern Idaho, and Northwestern Montana. In addition to the certainty of satisfactory crops and good markets, a fine climate makes life worth living—it never gets too cold or too hot. Write for our free folder, "A Farm Home For You." It gives you descriptions and prices of farm land opportunities in this favored country, where you can get the benefit of the advance in values sure to come in a section that has rich soil, ample rainfall and splendid climate. Farm Development Bureau, 608 Chamber of Commerce Building, Spokane, Washington.

FOR \$475, IMPROVED 85 ACRES, CLOSE IN, spring. Ark. Investment Co., Leslie, Ark.

Cash for Old False Teeth

Don't matter if broken. We pay up to \$20.00 per set, also cash for old gold, silver, platinum dental gold and old jewelry. Will send cash by return mail and will hold goods 10 days for sender's approval of our price. Mail to **Moss's Tooth Specialty, 2087 S. 5th St., Philadelphia, Pa.**

Deafness



Perfect hearing is now being restored in every condition of deafness or defective hearing from causes such as Catarrhal Deafness, Relaxed or Sunken Drums, Thickened Drums, Roaring and Hissing Sounds, Perforated, Wholly or Partially Destroyed Drums, Discharge from Ears, etc.

Wilson Common-Sense Ear Drums "Little Wireless Phones for the Ears" require no medicine but effectively replace what is lacking or defective in the natural ear drums. They are simple devices, which the wearer easily fits into the ears where they are invisible. Soft, safe and comfortable. Write today for our 168 page FREE book on DEAFNESS, giving you full particulars and testimonials. **WILSON EAR DRUM CO., Incorporated** 695 West Southern Bldg. LOUISVILLE, KY

The Threshing Problem Solved

Threshes cowpeas and soybeans from the mown vines, wheat, oats, rye and barley. A perfect combination machine. Nothing like it. "The machine I have been looking for for 20 years," W. F. Massey. "It will meet every demand." H. A. Morgan, Director Tenn. Exp. Station. Booklet 55 free. **Noger Pea & Bean Thresher Co., Morristown, Tenn.**

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1,000,000 ROLLS
1 C Per Roll Write for sample catalog of 50 new designs and colorings. **SAMPLE BOOK MAILED FREE**
Martin Rosenberger, 172 3VINE STREET CINCINNATI, OHIO

Abolish the Truss Forever

Do Away With Steel and Rubber Bands That Chafe and Pinch

You know by your own experience the truss is a mere makeshift—a false prop against a collapsing wall—and that it is undermining your health. Why, then, continue to wear it?



Stuart's **PLAPAO-PADS** are different from the truss, being medicine applicators made self-adhesive purposely to prevent slipping and to hold the distended muscles securely in place. No straps, buckles or springs attached; no "digging in" or grinding pressure. **FREE TO THE RUPTURED**—Easy to Apply—Inexpensive. Continuous day and night treatment at home. No delay from work. Hundreds of people have gone before an officer qualified to acknowledge outbursts, and assure that the **Plapao-Pads** cured their rupture—some of them most aggravated cases of long standing. It is reasonable that they should do the same for you. Give them a chance.

FREE TO THE RUPTURED Trial Plapao and illustrated book on rupture. Learn how to close the hernial opening as nature intended, so the rupture can't come down. No charge for it, now or ever; nothing to be returned. Write today—NOW. Address, **Plapao Co. Block 752, St. Louis, Mo.**

FOR SALE

No. 1056: 33 ACRES, 4 MILES FROM COUNTY seat, Maryland mild climate, all arable except 3 acres of woodland; 7-room frame dwelling, front porch; built 5 years ago; new stable and carriage house, 60 fruit trees, 3 meadows with running stream; fine for poultry or cattle. Price \$2,700. Catalogue. Russell Realty Co., Baltimore, Md.

HELP WANTED

WANTED—A FORTICULTURIST OR ONE who understands pruning. Apply Peerless Fruit Farm, Hamburg, Pa.

\$3 A DAY GATHERING EVERGREENS, roots, and herbs. Ginseng, \$14 lb., Belladonna seed, \$64 lb., or grow it yourself. Book and war prices free. Botanical 16, New Haven, Conn.

PATENTS

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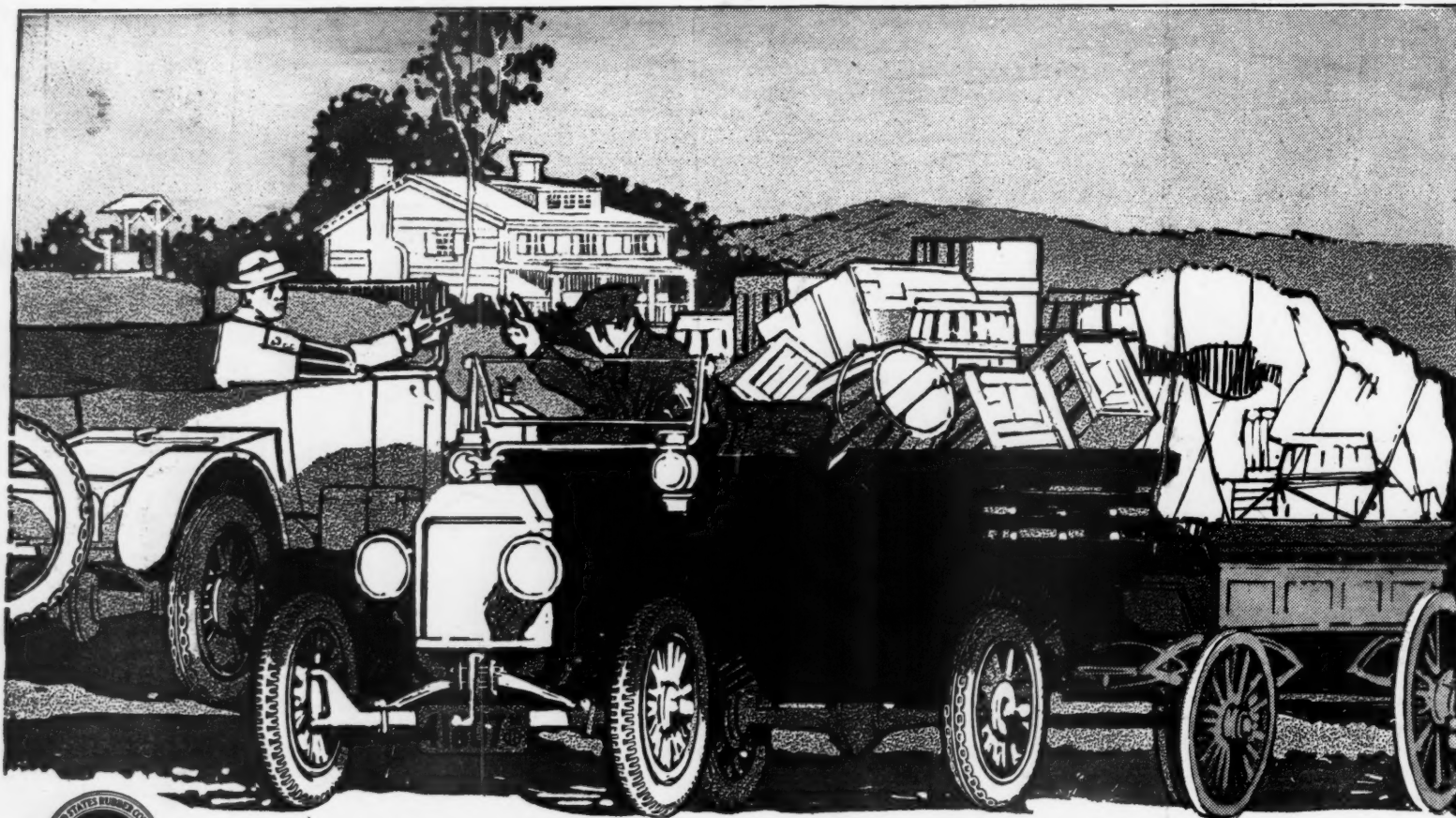
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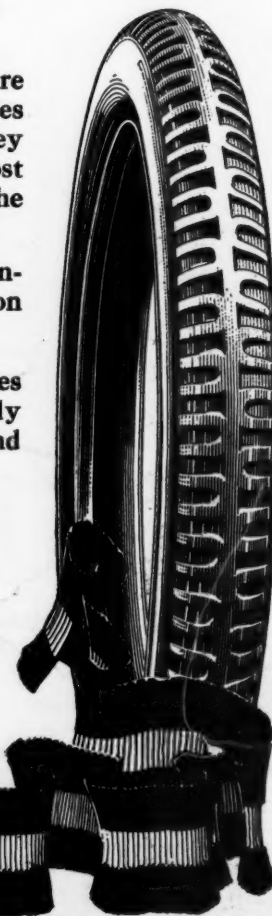
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